

APPENDIX C

ANALYTICAL REPORT

(81 Pages)



Tetra Tech EM Inc.

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MEMORANDUM

TO: Kevin Taylor
Superfund Technical Assessment and Response Team (START) Project Manager

FROM: Paula MacLaren *pma*
START Quality Assurance Officer

THROUGH: R. Steve Pierce *RSP*
START Leader, U.S. Environmental Protection Agency (EPA) Region 4

SUBJECT: Goins Waste Oil Site Analytical Data
Technical Direction Document No. 04-9902-0012

DATE: March 5, 1999

Accura Analytical Services, Inc., analyzed five soil samples (samples 1 and 2 and 4 through 6) and five waste samples (samples 3 and 7 through 10) collected on February 10 and 11, 1999, at the Goins Waste Oil site in Cleveland, Tennessee. The samples were analyzed for the following parameters:

- Volatile organic compounds (VOC)
- Semivolatile organic compounds (SVOC)
- Pesticides
- Polychlorinated biphenyls (PCB)
- Target analyte list (TAL) metals
- Total cyanide

The analytical data package was received 1 day late. A penalty charge of 3 percent will be applied against the total invoice cost. The following quality control samples were analyzed:

- **VOC analyses:** All sample analytical holding times were met. The laboratory blank was free of contamination. Matrix spike and matrix spike duplicate (MS/MSD) analyses were performed on soil sample 6. For the MS analysis, all six spiked component percent

recoveries were within the recommended quality assurance and quality control (QA/QC) range of 80 to 120 percent. For the MSD analysis, one of six spiked component percent recoveries was below the QA/QC lower limit of 80 percent (specifically toluene at 74 percent). All sample surrogate percent recoveries were within method limits. All laboratory control sample (LCS) percent recoveries were within the recommended QA/QC range of 80 to 120 percent. Analytical precision, as measured by relative percent difference (RPD), was within the recommended QA/QC guideline of no more than 20.

- **SVOC analyses:** All sample analytical holding times were met. The laboratory blank was free of contaminants. MS and MSD analyses were performed on soil sample 6. All spiked component percent recoveries were diluted out due to elevated levels of contaminants within the sample. All sample surrogate recoveries were diluted out due to matrix interferences or elevated levels of contaminants. All LCS spiked component percent recoveries were within the method-recommended limits.
- **Pesticides analyses:** All sample analytical holding times were met. The laboratory blank was free of contaminants. MS and MSD analyses were performed on soil sample 6. Again, all spiked component percent recoveries were diluted out due to matrix interferences. Surrogate recoveries for samples 3, 4, 5, 6, 7, 8, 9, and 10 were diluted out. All other sample surrogate percent recoveries were within method-recommended limits. All LCS spiked component percent recoveries were within method-recommended limits.
- **PCB analyses:** All sample analytical holding times were met. The laboratory blank was free of contaminants. MS and MSD analyses were performed on soil sample 6. All spiked component percent recoveries were diluted out due to matrix interferences. Surrogate recoveries for samples 3, 4, 5, 6, 7, 8, 9, and 10 were diluted out. All other sample surrogate percent recoveries were within method-recommended limits. All LCS spiked component percent recoveries were within the recommended QA/QC range of 80 to 120 percent.
- **TAL metals analyses:** All sample analytical holding times were met. The laboratory blank was free of contaminants. MS and MSD analyses were performed on soil sample 5. All spiked component percent recoveries were diluted out because of calcium matrix interference. All LCS spiked component percent recoveries were within the recommended QA/QC range of 80 to 120 percent.
- **Total cyanide analyses:** All sample analytical holding times were met. The laboratory blank was free of contaminants. The LCS spiked component percent recovery was within the QA/QC range of 80 to 120 percent.

A summary of the sample data is presented in Tables 1 and 2.

TABLE 1

**GOINS WASTE OIL SITE
ANALYTICAL DATA**

Soil Samples

Parameter	Sample Identification, Location, and Date				
	1	2	4	5	6
	GO-SC-01	GO-SB-02	GO-SB-04	GO-SS-05	GO-SS-06
	02/10/99	02/10/99	02/10/99	02/10/99	02/10/99
Volatile Organic Compound (µg/kg)					
Acetone	600	2,800 E	280	ND	ND
Benzene	12	8.1	68	ND	ND
2-Butanone	94	470	ND	ND	ND
1,1-Dichloroethane	ND	19	ND	ND	ND
Ethylbenzene	38	27	200	440	88
Tetrachloroethene	ND	ND	ND	ND	36
Toluene	130	44	370	1,700	110
Xylene (total)	520	41	1,300	2,800	930
Semivolatile Organic Compound (µg/kg)					
bis(2-Ethylhexyl)phthalate	ND	ND	ND	9,700	3,400
Pesticide (µg/kg)					
SW-846 Method 8081A	ND	ND	ND ¹	ND	ND
Polychlorinated Biphenyl (µg/kg)					
Aroclor 1260	350	ND	ND ¹	ND	6,200
Target Analyte List Metal (mg/kg)					
Aluminum	3,300	3,500	4,300	4,700	4,300
Antimony	ND	14	9.7	ND	13
Arsenic	ND	17	6.2	ND	12
Barium	1,800	33	50	260	46

TABLE 1 (continued)

**GOINS WASTE OIL SITE
ANALYTICAL DATA**

Soil Samples

Parameter	Sample Identification, Location, and Date				
	1	2	4	5	6
	GO-SC-01	GO-SB-02	GO-SB-04	GO-SS-05	GO-SS-06
	02/10/99	02/10/99	02/10/99	02/10/99	02/10/99
Target Analyte List Metal (mg/kg) (continued)					
Beryllium	ND	ND	ND	ND	ND
Cadmium	ND	1.3	1.1	ND	1.6
Calcium	180,000	1,400	3,800	190,000	31,000
Chromium	ND	9.6	8.4	380	18
Cobalt	ND	0.83	3.2	ND	4.1
Copper	ND	11	14	200	13
Iron	8,500	15,000	11,000	17,000	14,000
Lead	190	7.4	29	3,900	39
Magnesium	18,000	210	550	28,000	910
Manganese	190	23	250	230	260
Mercury	ND	ND	ND	ND	ND
Nickel	ND	2.6	4.1	40	4.3
Potassium	430	180	210	780	220
Selenium	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND
Sodium	ND	250	ND	ND	ND
Thallium	ND	ND	ND	ND	ND
Vanadium	15	29	22	ND	32
Zinc	ND	ND	ND	ND	110

TABLE 1 (continued)

GOINS WASTE OIL SITE
ANALYTICAL DATA

Soil Samples

Parameter	Sample Identification and Location				
	1	2	4	5	6
	GO-SC-01	GO-SB-02	GO-SB-04	GO-SS-05	GO-SS-06
	02/10/99	02/10/99	02/10/99	02/10/99	02/10/99
General Chemistry (mg/kg)					
Total cyanide	ND	ND	ND	2.3	ND

Notes:

E Estimated value; the concentration exceeded the calibration range of the instrument
µg/kg Microgram per kilogram
mg/kg Milligram per kilogram
ND Not detected
1 Not detected; elevated detection limits due to matrix interferences

Accura Analytical Laboratory, Inc., performed the sample analyses.

TABLE 2

GOINS WASTE OIL SITE
ANALYTICAL DATA

Waste Samples

Parameter	Sample Identification, Location, and Date				
	3	7	8	9	10
	GO-SC-03	GO-TK-07	GO-TK-08	GO-TK-09	GO-OWS-10
	02/10/99	02/11/99	02/11/99	02/11/99	02/11/99
Volatile Organic Compound (µg/L)					
Acetone	ND	22,000 E	170,000 E	83,000	310,000
Benzene	ND	280	970	ND	13,000
2-Butanone	ND	6,200	26,000	25,000	130,000 E
Carbon tetrachloride	ND	940	ND	720	ND
1,1-Dichloroethane	ND	ND	ND	340	ND
Ethylbenzene	48,000	1,800	12,000	1,100	220,000
Methylene chloride	270,000	3,900	460,000	19,000	2,000,000
4-Methyl-2-pentanone	ND	ND	190,000 E	9,000	270,000
Tetrachloroethene	62,000	560	11,000	2,700	230,000
Toluene	1,400,000	6,300	35,000	7,200	2,500,000
1,1,1-Trichloroethane	ND	5,500	5,600	4,300	5,300
Trichloroethene	29,000	1,700	45,000	7,100	72,000
Xylene (total)	190,000	9,500	60,000	5,400	950,000
Semivolatile Organic Compound (µg/kg)					
bis(2-Ethylhexyl)phthalate	2,200,000	ND ¹	ND ¹	ND ¹	1,500,000
Pesticide (µg/kg)					
SW-846 Method 8081A compounds	ND ¹	ND ¹	ND ¹	ND ¹	ND ¹
Polychlorinated Biphenyl (µg/kg)					
SW-846 Method 8082 compounds	ND	ND	ND	ND	ND

TABLE 2 (continued)

GOINS WASTE OIL SITE
ANALYTICAL DATA

Waste Samples

Parameter	Sample Identification, Location, and Date				
	3	7	8	9	10
	GO-SC-03	GO-TK-07	GO-TK-08	GO-TK-09	GO-OWS-10
	02/10/99	02/11/99	02/11/99	02/11/99	02/11/99
Target Analyte List Metal (mg/kg)					
Aluminum	96	37	210	150	270
Antimony	2.4	0.60	ND	ND	4.0
Arsenic	ND	ND	0.58	ND	ND
Barium	44	12	38	19	52
Beryllium	ND	ND	ND	ND	0.082
Cadmium	0.77	0.29	1.7	0.15	0.67
Calcium	590	280	1,200	680	920
Chromium	24	220	530	230	38
Cobalt	1.9	2.8	3.0	1.3	3.5
Copper	120	49	93	30	120
Iron	2,000	1,200	1,400	760	2,600
Lead	52	27	42	7.4	67
Magnesium	64	25	140	17	170
Manganese	22	38	50	33	45
Mercury	ND	ND	ND	ND	ND
Nickel	22	100	140	88	36
Potassium	35	180	630	310	74
Selenium	0.65	ND	ND	ND	1.1
Silver	ND	5.7	4.4	1.0	ND

TABLE 2 (continued)

GOINS WASTE OIL SITE
ANALYTICAL DATA

Waste Samples

Parameter	Sample Identification, Location, and Date				
	3	7	8	9	10
	GO-SC-03	GO-TK-07	GO-TK-08	GO-TK-09	GO-OWS-10
	02/10/99	02/11/99	02/11/99	02/11/99	02/11/99
Target Analyte List Metal (mg/kg) (continued)					
Sodium	260	1,300	8,100	6,000	1,000
Thallium	ND	ND	ND	ND	0.56
Vanadium	1.5	1.7	3.8	1.5	0.16
Zinc	290	58	57	20	470
General Chemistry (mg/kg)					
Total cyanide	ND	ND	ND	ND	ND

Notes: E Estimated value; the concentration exceeded the calibration range of the instrument

 $\mu\text{g}/\text{kg}$ Microgram per kilogram

mg/kg Milligram per kilogram

ND Not detected

SW Solid Waste

1 Not detected; elevated detection limits due to matrix interferences

Accra Analytical Laboratory, Inc., performed the sample analyses.

U. S. ENVIRONMENTAL PROTECTION AGENCY
REGION 4 TAT

CHAIN OF CUSTODY RECORD

TDT/4°C
19695
ENVIRONMENTAL SERVICES DIVISION
COLLEGE STATION ROAD
ATHENS, GEORGIA 30613

CLIENT: TETRA TECH CONTACT: PAULA MACLAREN

PROJ NO.	PROJECT NAME			NO. OF CONTAINERS	REMARKS/TAG NUMBERS
	DATE ISSUED	TIME	COMP. GRAB		
62041	1	2/10	1540	G0 - SC - 01 (TK, 400)	1
62042	2	2/10	1535	G0 - S3 - 02 (-2', 400)	2
62043	3	2/10	1600P	G0 - SC - 03	3
62044	4	2/10	1625	G0 - SB - 04	2
62045	5	2/10	1700	G0 - SS - 05	2
62046	6	2/10	1720	G0 - SS - 06	2
62047	7	2/11	0500	G0 - TK - 07 (TK, 400)	1
62048	8	2/11	1045	G0 - TK - 08 (TK, 400)	1
62049	9	2/11	1120	G0 - TK - 09 (TK, 400)	1
62050	10	2/11	1215	G0 - OUS - 10 (O, 400)	3
					STAB # 1 - 10 : Vol, semi, Vol, PIST, PCN, TK, CW - (G) G (ext ord, poss hard) (FNA) (EP) 40 ml vol G (VOA) Cl, F, SO4 86C 200 ml G (TOK) Cl, (OAG) (DPA) (OC, COD, N, P, 86C) P (FNA) (FNA) (FNA) (FNA) ILG (FNA) (FNA) (FNA) ILP (FNA) (FNA) (FNA) 0.5-1LP (FNA) 's of oil or ILP (CN) 8 oz G (ext ord, poss hard) (FNA) (EP) 4 oz G (VOA) Cl, F, SO4 86C P or G (CN) S, N, P COD 86C 8 oz G (FNA) (FNA) (FNA) 8 oz G (EP) (FNA) (CN) S, F, P (FNA) (FNA)
					Ground for Maxxam Service

Reinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Reinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks
	2/14/95 1623		2/14/95 1649					Rein-receptate having been cleaned in oil container.
Reinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Reinquished by (Signature)	Date/Time	Received by (Signature)	Date/Time	Remarks
								Oil Soil samples - STRAT / Pure product on mix w/ Hg #3, #7, #9, #10, #11, #12 5-AP-1-10; Vol, semi, V, PCP, TR, PER, E, T, R, L, C, H,

DISTRIBUTION Original and Pink copies accompany sample shipment to laboratory. Pink copy retained by laboratory.
Yellow copy retained by sampler. Blue copy extra copy as needed

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 19695-Revision
Client Project: Goins Oil, Cleveland, TN / Undisclosed

The following items were noted concerning this project:

1. The following samples required dilution due to high analyte concentration and/or matrix interference, resulting in elevated detection limits:

Pesticides – SW-846-8081A

1	2	3	4	5	6	7	8	9
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PCB – SW-846-8082

1	2	3	4	5	6	7	8	9	10
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SVOC – SW-846-8270C

1	2	3	4	5	6	7	8	9	10
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VOC- SW-846-8260B

1	2	3	4	5	6	7	8	9	10
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Metals – SW-846-6010B

1	5
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Cyanide – SW-846-9010B / 9014

5

2. The samples were received in 2oz jars. Because of this, the VOC soil samples were analyzed by method 5030.

3. The following surrogates were outside the method specified limits due to matrix interference:

VOC – SW-846-8260B

4-Bromofluorobenzene -	1	4	6
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4. The surrogates were diluted out for the following samples; therefore no recoveries could be reported:

Pesticides / PCB- SW-846-8081A / 8082

3	4	5	6	7	8	9	10
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SVOC – SW-846-8270C

1	2	3	4	5	6	7	8	9	10
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5. The following analyte concentrations were above calibration range:

VOC – SW-846-8260B

Acetone -	2	7	8
4-Methyl-2-Pentanone -		8	
2-Butanone -		10	

The results for these samples should be considered estimated.

6. The matrix spike standard was diluted out for the following analyses; therefore no recoveries could be reported for the matrix spike or matrix spike duplicate:

SVOC – SW-846-8270C

Pesticides – SW-846-8081A

PCB – SW-846-8082

7. The matrix spike duplicate recovery for the following analyte was outside the method specified limit due to sample heterogeneity:

VOC – SW-846-8260B

Toluene

8. Due to high Calcium interference, recoveries for the Metals analysis could not be reported for the matrix spike or matrix spike duplicate.
9. The Laboratory Control Sample for the Cyanide analysis had a 112% recovery. The Matrix Spike for the Cyanide analysis had a 104% recovery. The Matrix Spike Duplicate for the Cyanide analysis had a 94% recovery. The Relative Percent Difference for the Cyanide analysis had a 10% recovery.



C. L. M.

Quality Assurance

Accura Analytical Laboratory
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**QUALITY CONTROL RESULTS
TOTAL METALS - SOIL**

Laboratory Control Sample

Spike Compound	LCS Recovery (%)	LCSD Recovery (%)	RPD	RPD	Reference Range Recovery (%)
Aluminum	96	NA	NA	20	79-121
Antimony	97	NA	NA	20	65-119
Arsenic	93	NA	NA	20	67-115
Barium	97	NA	NA	20	77-113
Beryllium	94	NA	NA	20	65-116
Cadmium	95	NA	NA	20	70-119
Calcium	98	NA	NA	20	61-125
Chromium	96	NA	NA	20	70-120
Cobalt	97	NA	NA	20	72-119
Copper	99	NA	NA	20	77-114
Iron	102	NA	NA	20	72-125
Lead	95	NA	NA	20	69-118
Mercury	103	NA	NA	20	63-129
Magnesium	95	NA	NA	20	71-114
Manganese	98	NA	NA	20	73-120
Nickel	95	NA	NA	20	68-121
Potassium	95	NA	NA	20	79-108
Selenium	97	NA	NA	20	67-118
Silver	95	NA	NA	20	21-146
Sodium	101	NA	NA	20	75-158
Thallium	95	NA	NA	20	69-125
Vanadium	96	NA	NA	20	72-120
Zinc	99	NA	NA	20	76-119

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**QUALITY CONTROL RESULTS
TOTAL METALS - SOIL**

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
Sample ID: 5*

Spike Compound	MS Recovery (%)	MSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Antimony	DO	DO	NA	20	0-134
Arsenic	DO	DO	NA	20	69-108
Barium	DO	DO	NA	20	61-125
Beryllium	DO	DO	NA	20	65-108
Cadmium	DO	DO	NA	20	71-112
Chromium	DO	DO	NA	20	69-112
Cobalt	DO	DO	NA	20	71-112
Copper	DO	DO	NA	20	68-119
Lead	DO	DO	NA	20	71-112
Mercury	118	118	0	20	64-126
Nickel	DO	DO	NA	20	71-109
Selenium	DO	DO	NA	20	69-111
Silver	DO	DO	NA	20	32-125
Thallium	DO	DO	NA	20	61-117
Vanadium	DO	DO	NA	20	65-114
Zinc	DO	DO	NA	20	54-126

* = Mercury QC performed on sample 6

DO = Diluted out

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**QUALITY CONTROL RESULTS
TOTAL VOLATILES - SOIL**

Laboratory Control Sample

Spike Compound	LCS Recovery (%)	LCSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
1,1-Dichlorobenzene	106	NA	NA	20	61-154
Benzene	96	NA	NA	20	76-127
Trichloroethene	97	NA	NA	20	71-120
Toluene	99	NA	NA	20	76-125
Chlorobenzene	104	NA	NA	20	75-130

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
Sample ID: 2

Spike Compound	MS Recovery (%)	MSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
1,1-Dichlorobenzene	107	107	1	20	61-154
Benzene	96	95	1	20	76-127
Trichloroethene	90	89	1	20	71-120
Toluene	90	74*	20	20	76-125
Chlorobenzene	104	102	2	20	75-130

* = Outside limit due to sample heterogeneity

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**QUALITY CONTROL RESULTS
TOTAL SEMIVOLATILES - SOIL**

Laboratory Control Sample

Spike Compound	LCS Recovery (%)	LCSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Phenol	79	NA	NA	20	19-92
2-Chlorophenol	77	NA	NA	20	21-91
4-Chloro-3-methylphenol	94	NA	NA	20	19-114
4-Nitrophenol	69	NA	NA	20	15-116
Pentachlorophenol	94	NA	NA	20	21-102
1,4-Dichlorobenzene	74	NA	NA	20	19-98
n-Nitroso-di-n-propylamine	92	NA	NA	20	7-111
1,2,4-Trichlorobenzene	80	NA	NA	20	22-104
Acenaphthene	88	NA	NA	20	28-113
2,4-Dinitrotoluene	96	NA	NA	20	18-110
Pyrene	94	NA	NA	20	54-110

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
Sample ID: 6

Spike Compound	MS Recovery (%)	MSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Phenol	DO	DO	NA	20	19-92
2-Chlorophenol	DO	DO	NA	20	21-91
4-Chloro-3-methylphenol	DO	DO	NA	20	19-114
4-Nitrophenol	DO	DO	NA	20	15-116
Pentachlorophenol	DO	DO	NA	20	21-92
1,4-Dichlorobenzene	DO	DO	NA	20	19-98
n-Nitroso-di-n-propylamine	DO	DO	NA	20	7-111
1,2,4-Trichlorobenzene	DO	DO	NA	20	22-104
Acenaphthene	DO	DO	NA	20	28-113
2,4-Dinitrotoluene	DO	DO	NA	20	18-110
Pyrene	DO	DO	NA	20	54-110

DO = Diluted out

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QUALITY CONTROL RESULTS
TOTAL PCBs - SOIL

Laboratory Control Sample

Spike Compound	LCS Recovery (%)	LCSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Ar1016	95	NA	NA	20	56-122
Ar1260	102	NA	NA	20	74-124

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
Sample ID: 6

Spike Compound	MS Recovery (%)	MSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Ar1016	DO	DO	NA	20	56-122
Ar1260	DO	DO	NA	20	74-124

DO = Diluted out

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**QUALITY CONTROL RESULTS
TOTAL PESTICIDES - SOIL**

Laboratory Control Sample

Spike Compound	LCS Recovery (%)	LCSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Aldrin	116	NA	NA	20	42-122
alpha-BHC	113	NA	NA	20	37-134
beta-BHC	119	NA	NA	20	17-147
gamma-BHC	116	NA	NA	20	19-140
delta-BHC	115	NA	NA	20	32-127
4,4'-DDD	120	NA	NA	20	31-141
4,4'-DDE	119	NA	NA	20	30-145
4,4'-DDT	117	NA	NA	20	25-160
Dieldrin	119	NA	NA	20	36-146
Endosulfan I	82	NA	NA	20	45-153
Endosulfan II	91	NA	NA	20	0-202
Endosulfan Sulfate	110	NA	NA	20	26-144
Endrin	144	NA	NA	20	30-147
Endrin Aldehyde	110	NA	NA	20	50-150
Heptachlor epoxide	118	NA	NA	20	37-142
Heptachlor	136	NA	NA	20	17-147
Methoxychlor	118	NA	NA	20	50-185

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QUALITY CONTROL RESULTS
TOTAL PESTICIDES - SOIL

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)
Sample ID: 6

Spike Compound	MS Recovery (%)	MSD Recovery (%)	RPD	Reference Range	
				RPD	Recovery (%)
Aldrin	DO	DO	NA	20	42-122
alpha-BHC	DO	DO	NA	20	37-134
beta-BHC	DO	DO	NA	20	17-147
gamma-BHC	DO	DO	NA	20	19-140
delta-BHC	DO	DO	NA	20	32-127
4,4'-DDD	DO	DO	NA	20	31-141
4,4'-DDE	DO	DO	NA	20	30-145
4,4'-DDT	DO	DO	NA	20	25-160
Dieldrin	DO	DO	NA	20	36-146
Endosulfan I	DO	DO	NA	20	45-153
Endosulfan II	DO	DO	NA	20	0-202
Endosulfan Sulfate	DO	DO	NA	20	26-144
Endrin	DO	DO	NA	20	30-147
Endrin Aldehyde	DO	DO	NA	20	50-150
Heptachlor epoxide	DO	DO	NA	20	37-142
Heptachlor	DO	DO	NA	20	17-147
Methoxychlor	DO	DO	NA	20	50-185

DO = Diluted out

ACCURA ANALYTICAL LABORATORY, INC.
6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800

CASE NARRATIVE for Project Number: 19695
Client Project: Goins Oil, Cleveland, TN / Undisclosed

The following items were noted concerning this project:

1. The following samples required dilution due to high analyte concentration and/or matrix interference, resulting in elevated detection limits:

Pesticides – SW-846-8081A

1
2
3
4
5
6
7
8
9
10

PCB – SW-846-8082

1
2
3
4
5
6
7
8
9
10

SVOC – SW-846-8270C

1
2
3
4
5
6
7
8
9
10

VOC- SW-846-8260B

1
2
3
4
5
6
7
8
9
10

Metals – SW-846-3050B / 6010B

1
5

Cyanide – SW-846-9010B / 9014

5

2. The samples were received in 9oz jars. Because of this, the VOC soil samples were analyzed by method 5030.
3. The following surrogates were outside the method specified limits due to matrix interference:

VOC – SW-846-8260B

4-Bromofluorobenzene -	1
	4
	6

4. The surrogates were diluted out for the following samples; therefore no recoveries could be reported:

Pesticides / PCB – SW-846-8081A / 8082

3	
4	
5	
6	
7	
8	
9	
10	

SVOC – SW-846-8270C

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

5. The following analyte concentrations were above calibration range:

VOC – SW-846-8260B

Acetone -	2	7	8
4-Methyl-2-Pentanone -		8	
2-Butanone -		10	

The results for these samples should be considered estimated.



C. Clark

Quality Assurance

ACCURA ANALYTICAL LABORATORY, INC.

6017 Financial Drive, Norcross, Georgia 30071. Phone (770)449-8800, FAX (770)449-5477

FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62041

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: 1

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total) <RDL 0.02

ANALYSIS: Metals - Mercury - TAL

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury <RDL 0.5

ANALYSIS: Metals - TAL

Method Ref: 3050B/6010B

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/24/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	3,300	50
Antimony	<RDL	50
Arsenic	<RDL	50
Barium	1,800	50
Beryllium	<RDL	3.0
Cadmium	<RDL	5.0
Calcium	180,000	200
Chromium	<RDL	50
Cobalt	<RDL	10
Copper	<RDL	50
Iron	8,500	100
Lead	190	50
Magnesium	18,000	50
Manganese	190	50
Nickel	<RDL	10
Potassium	430	200
Selenium	<RDL	50
Silver	<RDL	50

Sodium	<RDL	1000
Thallium	<RDL	50
Vanadium	15	10
Zinc	<RDL	1000

ANALYSIS: PCB's

Method Ref: 3550B/8082

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/23/99

Result Units: ug/Kg

Analyte Name

<u>Analytical Results</u>	<u>Reported Detection Limits</u>
<RDL	200
<RDL	400
<RDL	400
<RDL	200
<RDL	200
<RDL	200
350	200

ANALYSIS: Pesticides

Method Ref: 3550B/8081A

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/19/99

Result Units: ug/Kg

Analyte Name

<u>Analytical Results</u>	<u>Reported Detection Limits</u>
<RDL	20
<RDL	20
<RDL	40
<RDL	20
<RDL	100
<RDL	200
<RDL	1000

ANALYSIS: SVOC's - TCL

Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99

Date Analyzed: 3/1/99

Result Units: ug/Kg

Analyte Name

<u>Analytical Results</u>	<u>Reported Detection Limits</u>
<RDL	3300

2,4,5-Trichlorophenol	<RDL	3300
2,4,6-Trichlorophenol	<RDL	3300
2,4-Dichlorophenol	<RDL	3300
2,4-Dimethylphenol	<RDL	3300
2,4-Dinitrophenol	<RDL	17000
2,4-Dinitrotoluene	<RDL	3300
2,6-Dinitrotoluene	<RDL	3300
2-Chloronaphthalene	<RDL	3300
2-Chlorophenol	<RDL	3300
2-Methylnaphthalene	<RDL	3300
2-Methylphenol	<RDL	3300
2-Nitroaniline	<RDL	6600
2-Nitrophenol	<RDL	3300
3,3'-Dichlorobenzidine	<RDL	3300
3-Nitroaniline	<RDL	6600
4,6-Dinitro-2-methylphenol	<RDL	6600
4-Bromophenyl phenyl ether	<RDL	3300
4-Chloro-3-methylphenol	<RDL	3300
4-Chloroaniline	<RDL	3300
4-Chlorophenyl phenyl ether	<RDL	3300
4-Methylphenol	<RDL	3300
4-Nitroaniline	<RDL	6600
4-Nitrophenol	<RDL	6600
Acenaphthene	<RDL	3300
Acenaphthylene	<RDL	3300
Anthracene	<RDL	3300
Benzo(a)anthracene	<RDL	3300
Benzo(a)pyrene	<RDL	3300
Benzo(b)fluoranthene	<RDL	3300
Benzo(g,h,i)perylene	<RDL	3300
Benzo(k)fluoranthene	<RDL	3300
bis(2-Chloroethoxy)methane	<RDL	3300
bis(2-Chloroethyl)ether	<RDL	3300
bis(2-Chloroisopropyl)ether	<RDL	3300
bis(2-Ethylhexyl)phthalate	<RDL	3300
Butyl benzyl phthalate	<RDL	3300
Carbazole	<RDL	3300
Chrysene	<RDL	3300
Di-n-butylphthalate	<RDL	3300
Di-n-octylphthalate	<RDL	3300
Dibenz(a,h)anthracene	<RDL	3300
Dibenzofuran	<RDL	3300
Diethylphthalate	<RDL	3300
Dimethylphthalate	<RDL	3300
Fluoranthene	<RDL	3300
Fluorene	<RDL	3300
Hexachlorobenzene	<RDL	3300
Hexachlorobutadiene	<RDL	3300
Hexachlorocyclopentadiene	<RDL	3300
Hexachloroethane	<RDL	3300
Indeno(1,2,3-cd)pyrene	<RDL	3300
Isophorone	<RDL	3300

n-Nitroso-di-n-propylamine	<RDL	3300
n-Nitrosodiphenylamine	<RDL	3300
Naphthalene	<RDL	3300
Nitrobenzene	<RDL	3300
Pentachlorophenol	<RDL	6600
Phenanthrene	<RDL	3300
Phenol	<RDL	3300
Pyrene	<RDL	3300

ANALYSIS: VOC's - TCL

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	25
1,1,2,2-Tetrachloroethane	<RDL	25
1,1,2-Trichloroethane	<RDL	25
1,1-Dichloroethane	<RDL	25
1,1-Dichloroethene	<RDL	25
1,2-Dichloroethane	<RDL	25
1,2-Dichloroethene (Total)	<RDL	25
1,2-Dichloropropane	<RDL	25
2-Butanone (MEK)	94	50
2-Hexanone	<RDL	250
4-Methyl-2-pentanone (MIBK)	<RDL	250
Acetone	600	250
Benzene	12	5
Bromodichloromethane	<RDL	25
Bromoform	<RDL	25
Bromomethane	<RDL	25
Carbon disulfide	<RDL	50
Carbon tetrachloride	<RDL	25
Chlorobenzene	<RDL	25
Chloroethane	<RDL	25
Chloroform	<RDL	25
Chloromethane	<RDL	25
cis-1,3-Dichloropropene	<RDL	25
Dibromochloromethane	<RDL	25
Ethylbenzene	38	25
Methylene chloride	<RDL	50
Styrene	<RDL	25
Tetrachloroethene	<RDL	25
Toluene	130	25
trans-1,3-Dichloropropene	<RDL	25
Trichloroethene	<RDL	25
Vinyl chloride	<RDL	25
Xylenes (Total)	520	25

<u>ANALYSIS: X Pest/PCB QC Surrogates</u>		Method Ref: 3550B/8081/2
Date Ext/Dig/Prep:	2/ 7/99	Date Analyzed: 2/19/99 Result Units: %
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	108	0
Tetrachloro-m-xylene	104	0
<u>ANALYSIS: X VOC QC Surrogates</u>		Method Ref: 8260B
Date Ext/Dig/Prep:	2/17/99	Date Analyzed: 2/17/99 Result Units: %
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	109	0
4-Bromofluorobenzene	126	0
Toluene-d8	106	0
<u>ANALYSIS: X SVOC QC Surrogates (Soils)</u>		Method Ref: 3550B/8270C
Date Ext/Dig/Prep:	2/23/99	Date Analyzed: 3/1/99 Result Units: %
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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LABORATORY REPORT

Accura Sample ID #: AB62042

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: 2

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99

Date Analyzed: 2/22/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total)

<RDL

0.02

ANALYSIS: Metals - Mercury - TAL

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury

<RDL

0.5

ANALYSIS: Metals - TAL

Method Ref: 3050B/6010B

Date Ext/Dig/Prep: 2/22/99

Date Analyzed: 2/23/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum

3.500

5.0

Antimony

14

5.0

Arsenic

17

5.0

Barium

33

5.0

Beryllium

<RDL

0.3

Cadmium

1.3

0.5

Calcium

1,400

20

Chromium

9.6

5.0

Cobalt

0.83

1.0

Copper

11

5.0

Iron

15,000

10

Lead

7.4

5.0

Magnesium

210

5.0

Manganese

23

5.0

Nickel

2.6

1.0

Potassium

180

20

Selenium

<RDL

5.0

Silver

<RDL

5.0

Sodium	250	100
Thallium	<RDL	5.0
Vanadium	29	1.0
Zinc	<RDL	100

ANALYSIS: PCB's Method Ref: 3550B/8082

Date Ext/Dig/Prep: 2/ 7/99 Date Analyzed: 2/19/99 Result Units: ug/Kg

Analyte Name	Analvtical Results	Reported Detection Limits
Aroclor-1016	<RDL	200
Aroclor-1221	<RDL	400
Aroclor-1232	<RDL	400
Aroclor-1242	<RDL	200
Aroclor-1248	<RDL	200
Aroclor-1254	<RDL	200
Aroclor-1260	<RDL	200

ANALYSIS: Pesticides Method Ref: 3550B/8081A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg

Analyte Name	Analvtical Results	Reported Detection Limits
4,4'-DDD	<RDL	20
4,4'-DDE	<RDL	20
4,4'-DDT	<RDL	40
Aldrin	<RDL	20
alpha-BHC	<RDL	20
alpha-Endosulfan	<RDL	20
beta-BHC	<RDL	20
beta-Endosulfan	<RDL	20
delta-BHC	<RDL	20
Dieldrin	<RDL	20
Endosulfan sulfate	<RDL	20
Endrin	<RDL	20
Endrin aldehyde	<RDL	20
gamma-BHC (Lindane)	<RDL	20
Heptachlor	<RDL	20
Heptachlor epoxide	<RDL	20
Methoxychlor	<RDL	100
Total Chlordane (Technical)	<RDL	200
Toxaphene	<RDL	1000

ANALYSIS: SVOC's - TCL Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Result Units: ug/Kg

Analvte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	3300
1,2-Dichlorobenzene	<RDL	3300
1,3-Dichlorobenzene	<RDL	3300
1,4-Dichlorobenzene	<RDL	3300

2,4,5-Trichlorophenol	<RDL	3300
2,4,6-Trichlorophenol	<RDL	3300
2,4-Dichlorophenol	<RDL	3300
2,4-Dimethylphenol	<RDL	3300
2,4-Dinitrophenol	<RDL	17000
2,4-Dinitrotoluene	<RDL	3300
2,6-Dinitrotoluene	<RDL	3300
2-Chloronaphthalene	<RDL	3300
2-Chlorophenol	<RDL	3300
2-Methylnaphthalene	<RDL	3300
2-Methylphenol	<RDL	3300
2-Nitroaniline	<RDL	3300
2-Nitrophenol	<RDL	6600
3,3'-Dichlorobenzidine	<RDL	3300
3-Nitroaniline	<RDL	6600
4,6-Dinitro-2-methylphenol	<RDL	6600
4-Bromophenyl phenyl ether	<RDL	3300
4-Chloro-3-methylphenol	<RDL	3300
4-Chloroaniline	<RDL	3300
4-Chlorophenyl phenyl ether	<RDL	3300
4-Methylphenol	<RDL	3300
4-Nitroaniline	<RDL	6600
4-Nitrophenol	<RDL	6600
Acenaphthene	<RDL	3300
Acenaphthylene	<RDL	3300
Anthracene	<RDL	3300
Benzo(a)anthracene	<RDL	3300
Benzo(a)pyrene	<RDL	3300
Benzo(b)fluoranthene	<RDL	3300
Benzo(g,h,i)perylene	<RDL	3300
Benzo(k)fluoranthene	<RDL	3300
bis(2-Chloroethoxy)methane	<RDL	3300
bis(2-Chloroethyl)ether	<RDL	3300
bis(2-Chloroisopropyl)ether	<RDL	3300
bis(2-Ethylhexyl)phthalate	<RDL	3300
Butyl benzyl phthalate	<RDL	3300
Carbazole	<RDL	3300
Chrysene	<RDL	3300
Di-n-butylphthalate	<RDL	3300
Di-n-octylphthalate	<RDL	3300
Dibenz(a,h)anthracene	<RDL	3300
Dibenzofuran	<RDL	3300
Diethylphthalate	<RDL	3300
Dimethylphthalate	<RDL	3300
Fluoranthene	<RDL	3300
Fluorene	<RDL	3300
Hexachlorobenzene	<RDL	3300
Hexachlorobutadiene	<RDL	3300
Hexachlorocyclopentadiene	<RDL	3300
Hexachloroethane	<RDL	3300
Indeno(1,2,3-cd)pyrene	<RDL	3300
Isophorone	<RDL	3300

n-Nitroso-di-n-propylamine	<RDL	3300
n-Nitrosodiphenylamine	<RDL	3300
Naphthalene	<RDL	3300
Nitrobenzene	<RDL	3300
Pentachlorophenol	<RDL	6600
Phenanthrene	<RDL	3300
Phenol	<RDL	3300
Pyrene	<RDL	3300

ANALYSIS: VOC's - TCL

Method Ref: 8260B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/16/99 Result Units: ug/Kg

<u>Analvte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1,1-Trichloroethane	<RDL	5
1,1,2,2-Tetrachloroethane	<RDL	5
1,1,2-Trichloroethane	<RDL	5
1,1-Dichloroethane	19	5
1,1-Dichloroethene	<RDL	5
1,2-Dichloroethane	<RDL	5
1,2-Dichloroethene (Total)	<RDL	5
1,2-Dichloropropane	<RDL	5
2-Butanone (MEK)	470	250
2-Hexanone	<RDL	50
4-Methyl-2-pentanone (MIBK)	<RDL	50
Acetone	2,800	250
Benzene	8.1	5
Bromodichloromethane	<RDL	5
Bromoform	<RDL	5
Bromomethane	<RDL	5
Carbon disulfide	<RDL	10
Carbon tetrachloride	<RDL	5
Chlorobenzene	<RDL	5
Chloroethane	<RDL	5
Chloroform	<RDL	5
Chloromethane	<RDL	5
cis-1,3-Dichloropropene	<RDL	5
Dibromochloromethane	<RDL	5
Ethylbenzene	27	5
Methylene chloride	<RDL	10
Styrene	<RDL	5
Tetrachloroethene	<RDL	5
Toluene	44	5
trans-1,3-Dichloropropene	<RDL	5
Trichloroethene	<RDL	5
Vinyl chloride	<RDL	5
Xylenes (Total)	41	5

<u>ANALYSIS: X Pest/PCB QC Surrogates</u>		Method Ref: 3550B/8081/2	
Date Ext/Dig/Prep:	2/17/99	Date Analyzed:	2/19/99
<u>Analyte Name</u>		<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl		108	0
Tetrachloro-m-xylene		88	0
<u>ANALYSIS: X VOC QC Surrogates</u>		Method Ref: 8260B	
Date Ext/Dig/Prep:	2/16/99	Date Analyzed:	2/16/99
<u>Analyte Name</u>		<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4		96	0
4-Bromofluorobenzene		97	0
Toluene-d8		103	0
<u>ANALYSIS: X SVOC QC Surrogates (Soils)</u>		Method Ref: 3550B/8270C	
Date Ext/Dig/Prep:	2/23/99	Date Analyzed:	3/3/99
<u>Analyte Name</u>		<u>Analvtical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol		See Narrative	0
2-Fluorobiphenyl		See Narrative	0
2-Fluorophenol		See Narrative	0
Nitrobenzene-d5		See Narrative	0
p-Terphenyl-d14		See Narrative	0
Phenol-d5		See Narrative	0


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LABORATORY REPORT

Accura Sample ID #: AB62043

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: 3

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total) <RDL 0.02

ANALYSIS: Metals - Mercury (Misc Solids)

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury <RDL 0.25

ANALYSIS: Metals - TAL (Ashing Method)

Method Ref: 3030J/6010B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	96	0.50
Antimony	2.4	0.50
Arsenic	<RDL	0.50
Barium	44	0.50
Beryllium	<RDL	0.030
Cadmium	0.77	0.050
Calcium	590	2.0
Chromium	24	0.50
Cobalt	1.9	0.10
Copper	120	0.50
Iron	2,000	1.0
Lead	52	0.50
Magnesium	64	0.50
Manganese	22	0.50
Nickel	22	0.10
Potassium	35	2.0
Selenium	0.65	0.50
Silver	<RDL	0.50

Sodium	260	10.0
Thallium	<RDL	0.50
Vanadium	1.5	0.010
Zinc	290	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Aroclor-1016	<RDL	10
Aroclor-1221	<RDL	20
Aroclor-1232	<RDL	20
Aroclor-1242	<RDL	10
Aroclor-1248	<RDL	10
Aroclor-1254	<RDL	10
Aroclor-1260	<RDL	10

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	5.0
4,4'-DDE	<RDL	5.0
4,4'-DDT	<RDL	10
Aldrin	<RDL	5.0
alpha-BHC	<RDL	5.0
alpha-Endosulfan	<RDL	5.0
beta-BHC	<RDL	5.0
beta-Endosulfan	<RDL	5.0
delta-BHC	<RDL	5.0
Dieldrin	<RDL	5.0
Endosulfan sulfate	<RDL	5.0
Endrin	<RDL	5.0
Endrin aldehyde	<RDL	5.0
gamma-BHC (Lindane)	<RDL	5.0
Heptachlor	<RDL	5.0
Heptachlor epoxide	<RDL	5.0
Methoxychlor	<RDL	25
Total Chlordane (Technical)	<RDL	50
Toxaphene	<RDL	250

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	860
1,2-Dichlorobenzene	<RDL	860
1,3-Dichlorobenzene	<RDL	860
1,4-Dichlorobenzene	<RDL	860

2,4,5-Trichlorophenol	<RDL	860
2,4,6-Trichlorophenol	<RDL	860
2,4-Dichlorophenol	<RDL	860
2,4-Dimethylphenol	<RDL	860
2,4-Dinitrophenol	<RDL	860
2,4-Dinitrotoluene	<RDL	860
2,6-Dinitrotoluene	<RDL	860
2-Chloronaphthalene	<RDL	860
2-Chlorophenol	<RDL	860
2-Methylnaphthalene	<RDL	860
2-Methylphenol	<RDL	860
2-Nitroaniline	<RDL	860
2-Nitrophenol	<RDL	860
3,3'-Dichlorobenzidine	<RDL	860
3-Nitroaniline	<RDL	860
4,6-Dinitro-2-methylphenol	<RDL	860
4-Bromophenyl phenyl ether	<RDL	860
4-Chloro-3-methylphenol	<RDL	860
4-Chloroaniline	<RDL	860
4-Chlorophenyl phenyl ether	<RDL	860
4-Methylphenol	<RDL	860
4-Nitroaniline	<RDL	860
4-Nitrophenol	<RDL	860
Acenaphthene	<RDL	860
Acenaphthylene	<RDL	860
Anthracene	<RDL	860
Benzo(a)anthracene	<RDL	860
Benzo(a)pyrene	<RDL	860
Benzo(b)fluoranthene	<RDL	860
Benzo(g,h,i)perylene	<RDL	860
Benzo(k)fluoranthene	<RDL	860
bis(2-Chloroethoxy)methane	<RDL	860
bis(2-Chloroethyl)ether	<RDL	860
bis(2-Chloroisopropyl)ether	<RDL	860
bis(2-Ethylhexyl)phthalate	2,200	860
Butyl benzyl phthalate	<RDL	860
Carbazole	<RDL	860
Chrysene	<RDL	860
Di-n-butylphthalate	<RDL	860
Di-n-octylphthalate	<RDL	860
Dibenz(a,h)anthracene	<RDL	860
Dibenzofuran	<RDL	860
Diethylphthalate	<RDL	860
Dimethylphthalate	<RDL	860
Fluoranthene	<RDL	860
Fluorene	<RDL	860
Hexachlorobenzene	<RDL	860
Hexachlorobutadiene	<RDL	860
Hexachlorocyclopentadiene	<RDL	860
Hexachloroethane	<RDL	860
Indeno(1,2,3-cd)pyrene	<RDL	860
Isophorone	<RDL	860

n-Nitroso-di-n-propylamine	<RDL	860
n-Nitrosodiphenylamine	<RDL	860
Naphthalene	<RDL	860
Nitrobenzene	<RDL	860
Pentachlorophenol	<RDL	860
Phenanthrene	<RDL	860
Phenol	<RDL	860
Pyrene	<RDL	860

ANALYSIS: VOC's - TCL

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	2500
1,1,2,2-Tetrachloroethane	<RDL	2500
1,1,2-Trichloroethane	<RDL	2500
1,1-Dichloroethane	<RDL	2500
1,1-Dichloroethene	<RDL	2500
1,2-Dichloroethane	<RDL	2500
1,2-Dichloroethene (Total)	<RDL	2500
1,2-Dichloropropane	<RDL	2500
2-Butanone	<RDL	25000
2-Hexanone	<RDL	25000
4-Methyl-2-pentanone	<RDL	25000
Acetone	<RDL	25000
Benzene	<RDL	2500
Bromodichloromethane	<RDL	2500
Bromoform	<RDL	2500
Bromomethane	<RDL	2500
Carbon Disulfide	<RDL	2500
Carbon Tetrachloride	<RDL	2500
Chlorobenzene	<RDL	2500
Chloroethane	<RDL	2500
Chloroform	<RDL	2500
Chloromethane	<RDL	2500
cis-1,3-Dichloropropene	<RDL	2500
Dibromochloromethane	<RDL	2500
Ethylbenzene	48,000	2500
Methylene Chloride	270,000	25000
Styrene	<RDL	2500
Tetrachloroethene	62,000	2500
Toluene	1,400,000	50000
trans-1,3-Dichloropropene	<RDL	2500
Trichloroethene	29,000	2500
Vinyl Chloride	<RDL	1000
Xylenes (Total)	190,000	2500

ANALYSIS: X Pest/PCB QC Surrogates Waste

Method Ref: 3580A/8081/2

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates (Waters)

Method Ref: 8260

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: %

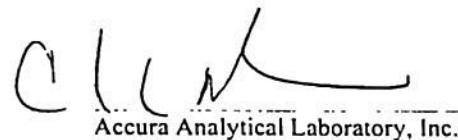
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	96	0
4-Bromofluorobenzene	98	0
Toluene-d8	100	0

ANALYSIS: X SVOC Surrogates Waste Dilution

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62044

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: 4

ANALYSIS: Cyanide

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Method Ref: 9010B/9014

Analyte Name	Analytical Results	Reported Detection Limits
Cyanide (Total)	<RDL	0.02

ANALYSIS: Metals - Mercury - TAL

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Method Ref: 7471A

Analyte Name	Analytical Results	Reported Detection Limits
Mercury	<RDL	0.5

ANALYSIS: Metals - TAL

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Method Ref: 3050B/6010B

Analyte Name	Analytical Results	Reported Detection Limits
Aluminum	4.300	5.0
Antimony	9.7	5.0
Arsenic	6.2	5.0
Barium	50	5.0
Beryllium	<RDL	0.3
Cadmium	1.1	0.5
Calcium	3.800	20
Chromium	8.4	5.0
Cobalt	3.2	1.0
Copper	14	5.0
Iron	11,000	10
Lead	29	5.0
Magnesium	550	5.0
Manganese	250	5.0
Nickel	4.1	1.0
Potassium	210	20
Selenium	<RDL	5.0
Silver	<RDL	5.0

Sodium	<RDL	100
Thallium	<RDL	5.0
Vanadium	22	1.0
Zinc	<RDL	100

ANALYSIS: PCB's

Method Ref: 3550B/8082

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Aroclor-1016	<RDL	2000
Aroclor-1221	<RDL	4000
Aroclor-1232	<RDL	4000
Aroclor-1242	<RDL	2000
Aroclor-1248	<RDL	2000
Aroclor-1254	<RDL	2000
Aroclor-1260	<RDL	2000

ANALYSIS: Pesticides

Method Ref: 3550B/8081A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
4,4'-DDD	<RDL	200
4,4'-DDE	<RDL	200
4,4'-DDT	<RDL	400
Aldrin	<RDL	200
alpha-BHC	<RDL	200
alpha-Endosulfan	<RDL	200
beta-BHC	<RDL	200
beta-Endosulfan	<RDL	200
delta-BHC	<RDL	200
Dieldrin	<RDL	200
Endosulfan sulfate	<RDL	200
Endrin	<RDL	200
Endrin aldehyde	<RDL	200
gamma-BHC (Lindane)	<RDL	200
Heptachlor	<RDL	200
Heptachlor epoxide	<RDL	200
Methoxychlor	<RDL	1000
Total Chlordane (Technical)	<RDL	2000
Toxaphene	<RDL	10000

ANALYSIS: SVOC's - TCL

Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2,4-Trichlorobenzene	<RDL	3300
1,2-Dichlorobenzene	<RDL	3300
1,3-Dichlorobenzene	<RDL	3300
1,4-Dichlorobenzene	<RDL	3300

2,4,5-Trichlorophenol	<RDL	3300
2,4,6-Trichlorophenol	<RDL	3300
2,4-Dichlorophenol	<RDL	3300
2,4-Dimethylphenol	<RDL	3300
2,4-Dinitrophenol	<RDL	17000
2,4-Dinitrotoluene	<RDL	3300
2,6-Dinitrotoluene	<RDL	3300
2-Chloronaphthalene	<RDL	3300
2-Chlorophenol	<RDL	3300
2-Methylnaphthalene	<RDL	3300
2-Methylphenol	<RDL	3300
2-Nitroaniline	<RDL	3300
2-Nitrophenol	<RDL	6600
3,3'-Dichlorobenzidine	<RDL	3300
3-Nitroaniline	<RDL	6600
4,6-Dinitro-2-methylphenol	<RDL	6600
4-Bromophenyl phenyl ether	<RDL	3300
4-Chloro-3-methylphenol	<RDL	3300
4-Chloroaniline	<RDL	3300
4-Chlorophenyl phenyl ether	<RDL	3300
4-Methylphenol	<RDL	3300
4-Nitroaniline	<RDL	6600
4-Nitrophenol	<RDL	6600
Acenaphthene	<RDL	3300
Acenaphthylene	<RDL	3300
Anthracene	<RDL	3300
Benzo(a)anthracene	<RDL	3300
Benzo(a)pyrene	<RDL	3300
Benzo(b)fluoranthene	<RDL	3300
Benzo(g,h,i)perylene	<RDL	3300
Benzo(k)fluoranthene	<RDL	3300
bis(2-Chloroethoxy)methane	<RDL	3300
bis(2-Chloroethyl)ether	<RDL	3300
bis(2-Chloroisopropyl)ether	<RDL	3300
bis(2-Ethylhexyl)phthalate	<RDL	3300
Butyl benzyl phthalate	<RDL	3300
Carbazole	<RDL	3300
Chrysene	<RDL	3300
Di-n-butylphthalate	<RDL	3300
Di-n-octylphthalate	<RDL	3300
Dibenz(a,h)anthracene	<RDL	3300
Dibenzofuran	<RDL	3300
Diethylphthalate	<RDL	3300
Dimethylphthalate	<RDL	3300
Fluoranthene	<RDL	3300
Fluorene	<RDL	3300
Hexachlorobenzene	<RDL	3300
Hexachlorobutadiene	<RDL	3300
Hexachlorocyclopentadiene	<RDL	3300
Hexachloroethane	<RDL	3300
Indeno(1,2,3-cd)pyrene	<RDL	3300
Isophorone	<RDL	3300

n-Nitroso-di-n-propylamine	<RDL	3300
n-Nitrosodiphenylamine	<RDL	3300
Naphthalene	<RDL	3300
Nitrobenzene	<RDL	3300
Pentachlorophenol	<RDL	6600
Phenanthrene	<RDL	3300
Phenol	<RDL	3300
Pyrene	<RDL	3300

ANALYSIS: VOC's - TCL

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: ug/Kg

Analyte Name	Analvtical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	25
1,1,2,2-Tetrachloroethane	<RDL	25
1,1,2-Trichloroethane	<RDL	25
1,1-Dichloroethane	<RDL	25
1,1-Dichloroethene	<RDL	25
1,2-Dichloroethane	<RDL	25
1,2-Dichloroethene (Total)	<RDL	25
1,2-Dichloropropane	<RDL	25
2-Butanone (MEK)	<RDL	250
2-Hexanone	<RDL	250
4-Methyl-2-pentanone (MIBK)	<RDL	250
Acetone	280	250
Benzene	68	25
Bromodichloromethane	<RDL	25
Bromoform	<RDL	25
Bromomethane	<RDL	25
Carbon disulfide	<RDL	50
Carbon tetrachloride	<RDL	25
Chlorobenzene	<RDL	25
Chloroethane	<RDL	25
Chloroform	<RDL	25
Chloromethane	<RDL	25
cis-1,3-Dichloropropene	<RDL	25
Dibromochloromethane	<RDL	25
Ethylbenzene	200	25
Methylene chloride	<RDL	50
Styrene	<RDL	25
Tetrachloroethene	<RDL	25
Toluene	370	25
trans-1,3-Dichloropropene	<RDL	25
Trichloroethene	<RDL	25
Vinyl chloride	<RDL	25
Xylenes (Total)	1.300	25

ANALYSIS: X Pest/PCB QC Surrogates

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/19/99

Method Ref: 3550B/8081/2

Result Units: %

Analyte Name

Decachlorobiphenyl

Analytical Results

See Narrative

0

Tetrachloro-m-xylene

See Narrative

0

Reported Detection Limits**ANALYSIS: X VOC QC Surrogates**

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: %

Analyte Name

1,2-Dichloroethane-d4

Analytical Results

107

0

4-Bromofluorobenzene

127

0

Toluene-d8

108

0

Reported Detection Limits**ANALYSIS: X SVOC QC Surrogates (Soils)**

Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99

Date Analyzed: 3/3/99

Result Units: %

Analyte Name

2,4,6-Tribromophenol

Analytical Results

See Narrative

0

2-Fluorobiphenyl

See Narrative

0

2-Fluorophenol

See Narrative

0

Nitrobenzene-d5

See Narrative

0

p-Terphenyl-d14

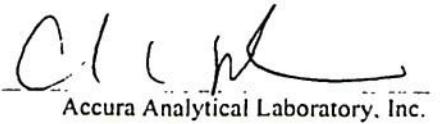
See Narrative

0

Phenol-d5

See Narrative

0



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FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62045

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: 5

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analyte Name

Analvtical Results

Reported Detection Limits

Cyanide (Total) 2.3 0.2

ANALYSIS: Metals - Mercury - TAL

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analvtical Results

Reported Detection Limits

Mercury <RDL 0.5

ANALYSIS: Metals - TAL

Method Ref: 3050B/6010B

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/24/99 Result Units: mg/Kg

Analyte Name

Analvtical Results

Reported Detection Limits

Aluminum	4,700	50
Antimony	<RDL	50
Arsenic	<RDL	50
Barium	260	50
Beryllium	<RDL	3.0
Cadmium	<RDL	5.0
Calcium	190,000	200
Chromium	380	50
Cobalt	<RDL	10
Copper	200	50
Iron	17,000	100
Lead	3,900	50
Magnesium	28,000	50
Manganese	230	50
Nickel	40	10
Potassium	780	200
Selenium	<RDL	50
Silver	<RDL	50

Sodium	<RDL	1000
Thallium	<RDL	50
Vanadium	<RDL	10
Zinc	<RDL	1000

ANALYSIS: PCB's

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg Method Ref: 3550B/8082

Analyte Name	Analytical Results	Reported Detection Limits
Aroclor-1016	<RDL	10000
Aroclor-1221	<RDL	20000
Aroclor-1232	<RDL	20000
Aroclor-1242	<RDL	10000
Aroclor-1248	<RDL	10000
Aroclor-1254	<RDL	10000
Aroclor-1260	<RDL	10000

ANALYSIS: Pesticides

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg Method Ref: 3550B/8081A

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	1000
4,4'-DDE	<RDL	1000
4,4'-DDT	<RDL	2000
Aldrin	<RDL	1000
alpha-BHC	<RDL	1000
alpha-Endosulfan	<RDL	1000
beta-BHC	<RDL	1000
beta-Endosulfan	<RDL	1000
delta-BHC	<RDL	1000
Dieldrin	<RDL	1000
Endosulfan sulfate	<RDL	1000
Endrin	<RDL	1000
Endrin aldehyde	<RDL	1000
gamma-BHC (Lindane)	<RDL	1000
Heptachlor	<RDL	1000
Heptachlor epoxide	<RDL	1000
Methoxychlor	<RDL	5000
Total Chlordane (Technical)	<RDL	10000
Toxaphene	<RDL	50000

ANALYSIS: SVOC's - TCL

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Result Units: ug/Kg Method Ref: 3550B/8270C

Analyte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	6700
1,2-Dichlorobenzene	<RDL	6700
1,3-Dichlorobenzene	<RDL	6700
1,4-Dichlorobenzene	<RDL	6700

2,4,5-Trichlorophenol	<RDL	6700
2,4,6-Trichlorophenol	<RDL	6700
2,4-Dichlorophenol	<RDL	6700
2,4-Dimethylphenol	<RDL	6700
2,4-Dinitrophenol	<RDL	34000
2,4-Dinitrotoluene	<RDL	6700
2,6-Dinitrotoluene	<RDL	6700
2-Choronaphthalene	<RDL	6700
2-Chlorophenol	<RDL	6700
2-Methylnaphthalene	<RDL	6700
2-Methylphenol	<RDL	6700
2-Nitroaniline	<RDL	13000
2-Nitrophenol	<RDL	6700
3,3'-Dichlorobenzidine	<RDL	6700
3-Nitroaniline	<RDL	13000
4,6-Dinitro-2-methylphenol	<RDL	13000
4-Bromophenyl phenyl ether	<RDL	6700
4-Chloro-3-methylphenol	<RDL	6700
4-Chloroaniline	<RDL	6700
4-Chlorophenyl phenyl ether	<RDL	6700
4-Methylphenol	<RDL	6700
4-Nitroaniline	<RDL	13000
4-Nitrophenol	<RDL	13000
Acenaphthene	<RDL	6700
Acenaphthylene	<RDL	6700
Anthracene	<RDL	6700
Benzo(a)anthracene	<RDL	6700
Benzo(a)pyrene	<RDL	6700
Benzo(b)fluoranthene	<RDL	6700
Benzo(g,h,i)perylene	<RDL	6700
Benzo(k)fluoranthene	<RDL	6700
bis(2-Chloroethoxy)methane	<RDL	6700
bis(2-Chloroethyl)ether	<RDL	6700
bis(2-Chloroisopropyl)ether	<RDL	6700
bis(2-Ethylhexyl)phthalate	9.700	6700
Butyl benzyl phthalate	<RDL	6700
Carbazole	<RDL	6700
Chrysene	<RDL	6700
Di-n-butylphthalate	<RDL	6700
Di-n-octylphthalate	<RDL	6700
Dibenz(a,h)anthracene	<RDL	6700
Dibenzofuran	<RDL	6700
Diethylphthalate	<RDL	6700
Dimethylphthalate	<RDL	6700
Fluoranthene	<RDL	6700
Fluorene	<RDL	6700
Hexachlorobenzene	<RDL	6700
Hexachlorobutadiene	<RDL	6700
Hexachlorocyclopentadiene	<RDL	6700
Hexachloroethane	<RDL	6700
Indeno(1,2,3-cd)pyrene	<RDL	6700
Isophorone	<RDL	6700

n-Nitroso-di-n-propylamine	<RDL	6700
n-Nitrosodiphenylamine	<RDL	6700
Naphthalene	<RDL	6700
Nitrobenzene	<RDL	6700
Pentachlorophenol	<RDL	13000
Phenanthrene	<RDL	6700
Phenol	<RDL	6700
Pyrene	<RDL	6700

ANALYSIS: VOC's - TCL

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	250
1,1,2,2-Tetrachloroethane	<RDL	250
1,1,2-Trichloroethane	<RDL	250
1,1-Dichloroethane	<RDL	250
1,1-Dichloroethene	<RDL	250
1,2-Dichloroethane	<RDL	250
1,2-Dichloroethene (Total)	<RDL	250
1,2-Dichloropropane	<RDL	250
2-Butanone (MEK)	<RDL	2500
2-Hexanone	<RDL	2500
4-Methyl-2-pentanone (MIBK)	<RDL	2500
Acetone	<RDL	2500
Benzene	<RDL	250
Bromodichloromethane	<RDL	250
Bromoform	<RDL	250
Bromomethane	<RDL	250
Carbon disulfide	<RDL	500
Carbon tetrachloride	<RDL	250
Chlorobenzene	<RDL	250
Chloroethane	<RDL	250
Chloroform	<RDL	250
Chloromethane	<RDL	250
cis-1,3-Dichloropropene	<RDL	250
Dibromochloromethane	<RDL	250
Ethylbenzene	440	250
Methylene chloride	<RDL	500
Styrene	<RDL	250
Tetrachloroethene	<RDL	250
Toluene	1,700	250
trans-1,3-Dichloropropene	<RDL	250
Trichloroethene	<RDL	250
Vinyl chloride	<RDL	250
Xylenes (Total)	2,800	250

ANALYSIS: X Pest/PCB QC Surrogates

Method Ref: 3550B/8081/2

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	98	0
4-Bromofluorobenzene	96	0
Toluene-d8	100	0

ANALYSIS: X SVOC QC Surrogates (Soils)

Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62046

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: 6

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99

Date Analyzed: 2/22/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total)

<RDL

0.02

ANALYSIS: Metals - Mercurv - TAL

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury

<RDL

0.5

ANALYSIS: Metals - TAL

Method Ref: 3050B/6010B

Date Ext/Dig/Prep: 2/22/99

Date Analyzed: 2/23/99

Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum

4.300

5.0

Antimony

13

5.0

Arsenic

12

5.0

Barium

46

5.0

Beryllium

<RDL

0.3

Cadmium

1.6

0.5

Calcium

31,000

20

Chromium

18

5.0

Cobalt

4.1

1.0

Copper

13

5.0

Iron

14,000

10

Lead

39

5.0

Magnesium

910

5.0

Manganese

260

5.0

Nickel

4.3

1.0

Potassium

220

20

Selenium

<RDL

5.0

Silver

<RDL

5.0

Sodium	<RDL	100
Thallium	<RDL	5.0
Vanadium	32	1.0
Zinc	110	100

ANALYSIS: PCB's

Method Ref: 3550B/8082

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/23/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Aroclor-1016	<RDL	2000
Aroclor-1221	<RDL	4000
Aroclor-1232	<RDL	4000
Aroclor-1242	<RDL	2000
Aroclor-1248	<RDL	2000
Aroclor-1254	<RDL	2000
Aroclor-1260	6,200	2000

ANALYSIS: Pesticides

Method Ref: 3550B/8081A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/19/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
4,4'-DDD	<RDL	200
4,4'-DDE	<RDL	200
4,4'-DDT	<RDL	400
Aldrin	<RDL	200
alpha-BHC	<RDL	200
alpha-Endosulfan	<RDL	200
beta-BHC	<RDL	200
beta-Endosulfan	<RDL	200
delta-BHC	<RDL	200
Dieldrin	<RDL	200
Endosulfan sulfate	<RDL	200
Endrin	<RDL	200
Endrin aldehyde	<RDL	200
gamma-BHC (Lindane)	<RDL	200
Heptachlor	<RDL	200
Heptachlor epoxide	<RDL	200
Methoxychlor	<RDL	1000
Total Chlordane (Technical)	<RDL	2000
Toxaphene	<RDL	10000

ANALYSIS: SVOC's - TCL

Method Ref: 3550B/8270C

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2,4-Trichlorobenzene	<RDL	3300
1,2-Dichlorobenzene	<RDL	3300
1,3-Dichlorobenzene	<RDL	3300
1,4-Dichlorobenzene	<RDL	3300

2,4,5-Trichlorophenol	<RDL	3300
2,4,6-Trichlorophenol	<RDL	3300
2,4-Dichlorophenol	<RDL	3300
2,4-Dimethylphenol	<RDL	3300
2,4-Dinitrophenol	<RDL	17000
2,4-Dinitrotoluene	<RDL	3300
2,6-Dinitrotoluene	<RDL	3300
2-Chloronaphthalene	<RDL	3300
2-Chlorophenol	<RDL	3300
2-Methylnaphthalene	<RDL	3300
2-Methylphenol	<RDL	3300
2-Nitroaniline	<RDL	6600
2-Nitrophenol	<RDL	3300
3,3'-Dichlorobenzidine	<RDL	3300
3-Nitroaniline	<RDL	6600
4,6-Dinitro-2-methylphenol	<RDL	6600
4-Bromophenyl phenyl ether	<RDL	3300
4-Chloro-3-methylphenol	<RDL	3300
4-Chloroaniline	<RDL	3300
4-Chlorophenyl phenyl ether	<RDL	3300
4-Methylphenol	<RDL	3300
4-Nitroaniline	<RDL	6600
4-Nitrophenol	<RDL	6600
Acenaphthene	<RDL	3300
Acenaphthylene	<RDL	3300
Anthracene	<RDL	3300
Benzo(a)anthracene	<RDL	3300
Benzo(a)pyrene	<RDL	3300
Benzo(b)fluoranthene	<RDL	3300
Benzo(g,h,i)perylene	<RDL	3300
Benzo(k)fluoranthene	<RDL	3300
bis(2-Chloroethoxy)methane	<RDL	3300
bis(2-Chloroethyl)ether	<RDL	3300
bis(2-Chloroisopropyl)ether	<RDL	3300
bis(2-Ethylhexyl)phthalate	3,400	3300
Butyl benzyl phthalate	<RDL	3300
Carbazole	<RDL	3300
Chrysene	<RDL	3300
Di-n-butylphthalate	<RDL	3300
Di-n-octylphthalate	<RDL	3300
Dibenz(a,h)anthracene	<RDL	3300
Dibenzofuran	<RDL	3300
Diethylphthalate	<RDL	3300
Dimethylphthalate	<RDL	3300
Fluoranthene	<RDL	3300
Fluorene	<RDL	3300
Hexachlorobenzene	<RDL	3300
Hexachlorobutadiene	<RDL	3300
Hexachlorocyclopentadiene	<RDL	3300
Hexachloroethane	<RDL	3300
Indeno(1,2,3-cd)pyrene	<RDL	3300
Isophorone	<RDL	3300

n-Nitroso-di-n-propylamine	<RDL	3300
n-Nitrosodiphenylamine	<RDL	3300
Naphthalene	<RDL	3300
Nitrobenzene	<RDL	3300
Pentachlorophenol	<RDL	6600
Phenanthrene	<RDL	3300
Phenol	<RDL	3300
Pyrene	<RDL	3300

ANALYSIS: VOC's - TCL

Method Ref: 8260B

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: ug/Kg

Analyte Name	Analvtical Results	Reported Detection Limits
1,1,1-Trichloroethane	<RDL	25
1,1,2,2-Tetrachloroethane	<RDL	25
1,1,2-Trichloroethane	<RDL	25
1,1-Dichloroethane	<RDL	25
1,1-Dichloroethene	<RDL	25
1,2-Dichloroethane	<RDL	25
1,2-Dichloroethene (Total)	<RDL	25
1,2-Dichloropropane	<RDL	25
2-Butanone (MEK)	<RDL	250
2-Hexanone	<RDL	250
4-Methyl-2-pentanone (MIBK)	<RDL	250
Acetone	<RDL	250
Benzene	<RDL	25
Bromodichloromethane	<RDL	25
Bromoform	<RDL	25
Bromomethane	<RDL	25
Carbon disulfide	<RDL	50
Carbon tetrachloride	<RDL	25
Chlorobenzene	<RDL	25
Chloroethane	<RDL	25
Chloroform	<RDL	25
Chloromethane	<RDL	25
cis-1,3-Dichloropropene	<RDL	25
Dibromochloromethane	<RDL	25
Ethylbenzene	88	25
Methylene chloride	<RDL	50
Styrene	<RDL	25
Tetrachloroethene	36	25
Toluene	110	25
trans-1,3-Dichloropropene	<RDL	25
Trichloroethene	<RDL	25
Vinyl chloride	<RDL	25
Xylenes (Total)	930	25

ANALYSIS: X Pest/PCB QC Surrogates

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/23/99 Method Ref: 3550B/8081/2

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Method Ref: 8260B

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	106	0
4-Bromofluorobenzene	127	0
Toluene-d8	108	0

ANALYSIS: X SVOC QC Surrogates (Soils)

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 3/3/99 Method Ref: 3550B/8270C

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62047

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/11/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: 7

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total) <RDL 0.02

ANALYSIS: Metals - Mercury (Misc Solids)

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury <RDL 0.25

ANALYSIS: Metals - TAL (Ashing Method)

Method Ref: 3030J/6010B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	37	0.50
Antimony	0.60	0.50
Arsenic	<RDL	0.50
Barium	12	0.50
Beryllium	<RDL	0.030
Cadmium	0.29	0.050
Calcium	280	2.0
Chromium	220	0.50
Cobalt	2.8	0.10
Copper	49	0.50
Iron	1,200	1.0
Lead	27	0.50
Magnesium	25	0.50
Manganese	38	0.50
Nickel	100	0.10
Potassium	180	2.0
Selenium	<RDL	0.50
Silver	5.7	0.50

Sodium	1,300	10
Thallium	<RDL	0.50
Vanadium	1.7	0.10
Zinc	58	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep:	2/19/99	Date Analyzed:	2/23/99	Result Units:	ug/Kg
Analyte Name	Analytical Results			Reported Detection Limits	
Aroclor-1016	<RDL			1000	
Aroclor-1221	<RDL			2000	
Aroclor-1232	<RDL			2000	
Aroclor-1242	<RDL			1000	
Aroclor-1248	<RDL			1000	
Aroclor-1254	<RDL			1000	
Aroclor-1260	<RDL			1000	

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep:	2/19/99	Date Analyzed:	2/23/99	Result Units:	mg/Kg
Analyte Name	Analytical Results			Reported Detection Limits	
4,4'-DDD	<RDL			100	
4,4'-DDE	<RDL			100	
4,4'-DDT	<RDL			200	
Aldrin	<RDL			100	
alpha-BHC	<RDL			100	
alpha-Endosulfan	<RDL			100	
beta-BHC	<RDL			100	
beta-Endosulfan	<RDL			100	
delta-BHC	<RDL			100	
Dieldrin	<RDL			100	
Endosulfan sulfate	<RDL			100	
Endrin	<RDL			100	
Endrin aldehyde	<RDL			100	
gamma-BHC (Lindane)	<RDL			100	
Heptachlor	<RDL			100	
Heptachlor epoxide	<RDL			100	
Methoxychlor	<RDL			500	
Total Chlordane (Technical)	<RDL			1000	
Toxaphene	<RDL			5000	

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep:	2/19/99	Date Analyzed:	2/20/99	Result Units:	mg/Kg
Analyte Name	Analytical Results			Reported Detection Limits	
1,2,4-Trichlorobenzene	<RDL			880	
1,2-Dichlorobenzene	<RDL			880	
1,3-Dichlorobenzene	<RDL			880	
1,4-Dichlorobenzene	<RDL			880	

2,4,5-Trichlorophenol	<RDL	880
2,4,6-Trichlorophenol	<RDL	880
2,4-Dichlorophenol	<RDL	880
2,4-Dimethylphenol	<RDL	880
2,4-Dinitrophenol	<RDL	880
2,4-Dinitrotoluene	<RDL	880
2,6-Dinitrotoluene	<RDL	880
2-Chloronaphthalene	<RDL	880
2-Chlorophenol	<RDL	880
2-Methylnaphthalene	<RDL	880
2-Methylphenol	<RDL	880
2-Nitroaniline	<RDL	880
2-Nitrophenol	<RDL	880
3,3'-Dichlorobenzidine	<RDL	880
3-Nitroaniline	<RDL	880
4,6-Dinitro-2-methylphenol	<RDL	880
4-Bromophenyl phenyl ether	<RDL	880
4-Chloro-3-methylphenol	<RDL	880
4-Chloroaniline	<RDL	880
4-Chlorophenyl phenyl ether	<RDL	880
4-Methylphenol	<RDL	880
4-Nitroaniline	<RDL	880
4-Nitrophenol	<RDL	880
Acenaphthene	<RDL	880
Acenaphthylene	<RDL	880
Anthracene	<RDL	880
Benzo(a)anthracene	<RDL	880
Benzo(a)pyrene	<RDL	880
Benzo(b)fluoranthene	<RDL	880
Benzo(g,h,i)perylene	<RDL	880
Benzo(k)fluoranthene	<RDL	880
bis(2-Chloroethoxy)methane	<RDL	880
bis(2-Chloroethyl)ether	<RDL	880
bis(2-Chloroisopropyl)ether	<RDL	880
bis(2-Ethylhexyl)phthalate	<RDL	880
Butyl benzyl phthalate	<RDL	880
Carbazole	<RDL	880
Chrysene	<RDL	880
Di-n-butylphthalate	<RDL	880
Di-n-octylphthalate	<RDL	880
Dibenz(a,h)anthracene	<RDL	880
Dibenzofuran	<RDL	880
Diethylphthalate	<RDL	880
Dimethylphthalate	<RDL	880
Fluoranthene	<RDL	880
Fluorene	<RDL	880
Hexachlorobenzene	<RDL	880
Hexachlorobutadiene	<RDL	880
Hexachlorocyclopentadiene	<RDL	880
Hexachloroethane	<RDL	880
Indeno(1,2,3-cd)pyrene	<RDL	880
Isophorone	<RDL	880

n-Nitroso-di-n-propylamine	<RDL	880
n-Nitrosodiphenylamine	<RDL	880
Naphthalene	<RDL	880
Nitrobenzene	<RDL	880
Pentachlorophenol	<RDL	880
Phenanthrene	<RDL	880
Phenol	<RDL	880
Pyrene	<RDL	880

ANALYSIS: VOC's - TCL

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: ug/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1,1-Trichloroethane	5,500	250
1,1,2,2-Tetrachloroethane	<RDL	250
1,1,2-Trichloroethane	<RDL	250
1,1-Dichloroethane	<RDL	250
1,1-Dichloroethene	<RDL	250
1,2-Dichloroethane	<RDL	250
1,2-Dichloroethene (Total)	<RDL	250
1,2-Dichloropropane	<RDL	250
2-Butanone	6,200	2500
2-Hexanone	<RDL	2500
4-Methyl-2-pentanone	<RDL	2500
Acetone	22,000	2500
Benzene	280	250
Bromodichloromethane	<RDL	250
Bromoform	<RDL	250
Bromomethane	<RDL	250
Carbon Disulfide	<RDL	250
Carbon Tetrachloride	940	250
Chlorobenzene	<RDL	250
Chloroethane	<RDL	250
Chloroform	<RDL	250
Chloromethane	<RDL	250
cis-1,3-Dichloropropene	<RDL	250
Dibromochloromethane	<RDL	250
Ethylbenzene	1,800	250
Methylene Chloride	3,900	250
Styrene	<RDL	250
Tetrachloroethene	560	250
Toluene	6,300	250
trans-1,3-Dichloropropene	<RDL	250
Trichloroethene	1,700	250
Vinyl Chloride	<RDL	100
Xylenes (Total)	9,500	250

ANALYSIS: X Pest/PCB QC Surrogates Waste

Method Ref: 3580A/8081/2

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99

Result Units: %

Analyte Name**Analytical Results****Reported Detection Limits**

Decachlorobiphenyl

See Narrative

0

Tetrachloro-m-xylene

See Narrative

0

ANALYSIS: X VOC QC Surrogates (Waters)

Method Ref: 8260

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99

Result Units: %

Analyte Name**Analytical Results****Reported Detection Limits**

1,2-Dichloroethane-d4

97

0

4-Bromofluorobenzene

110

0

Toluene-d8

105

0

ANALYSIS: X SVOC Surrogates Waste Dilution

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99

Result Units: %

Analyte Name**Analytical Results****Reported Detection Limits**

2,4,6-Tribromophenol

See Narrative

0

2-Fluorobiphenyl

See Narrative

0

2-Fluorophenol

See Narrative

0

Nitrobenzene-d5

See Narrative

0

p-Terphenyl-d14

See Narrative

0

Phenol-d5

See Narrative

0



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NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62048

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/11/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: 8

ANALYSIS: Cyanide

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Method Ref: 9010B/9014

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Cyanide (Total)	<RDL	0.02

ANALYSIS: Metals - Mercury (Misc Solids)

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Method Ref: 7471A

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Mercury	<RDL	0.25

ANALYSIS: Metals - TAL (Ashing Method)

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Method Ref: 3030J/6010B

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Aluminum	210	0.50
Antimony	<RDL	0.50
Arsenic	0.58	0.50
Barium	38	0.50
Beryllium	<RDL	0.03
Cadmium	1.7	0.05
Calcium	1,200	2.0
Chromium	530	0.50
Cobalt	3.0	0.10
Copper	93	0.50
Iron	1,400	1.0
Lead	42	0.50
Magnesium	140	0.50
Manganese	50	0.50
Nickel	140	0.10
Potassium	630	2.0
Selenium	<RDL	0.50
Silver	4.4	0.50

Sodium	8,100	10
Thallium	<RDL	0.50
Vanadium	3.8	0.10
Zinc	57	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Aroclor-1016	<RDL	100
Aroclor-1221	<RDL	200
Aroclor-1232	<RDL	200
Aroclor-1242	<RDL	100
Aroclor-1248	<RDL	100
Aroclor-1254	<RDL	100
Aroclor-1260	<RDL	100

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	50
4,4'-DDE	<RDL	50
4,4'-DDT	<RDL	100
Aldrin	<RDL	50
alpha-BHC	<RDL	50
alpha-Endosulfan	<RDL	50
beta-BHC	<RDL	50
beta-Endosulfan	<RDL	50
delta-BHC	<RDL	50
Dieldrin	<RDL	50
Endosulfan sulfate	<RDL	50
Endrin	<RDL	50
Endrin aldehyde	<RDL	50
gamma-BHC (Lindane)	<RDL	50
Heptachlor	<RDL	50
Heptachlor epoxide	<RDL	50
Methoxychlor	<RDL	250
Total Chlordane (Technical)	<RDL	500
Toxaphene	<RDL	2500

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	940
1,2-Dichlorobenzene	<RDL	940
1,3-Dichlorobenzene	<RDL	940
1,4-Dichlorobenzene	<RDL	940

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<RDL = Less than Reported Detection Limit

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Client Sample ID: 8

AAL Sample ID #: AB62048 Accura Project #: 19695

2,4,5-Trichlorophenol	<RDL	940
2,4,6-Trichlorophenol	<RDL	940
2,4-Dichlorophenol	<RDL	940
2,4-Dimethylphenol	<RDL	940
2,4-Dinitrophenol	<RDL	940
2,4-Dinitrotoluene	<RDL	940
2,6-Dinitrotoluene	<RDL	940
2-Chloronaphthalene	<RDL	940
2-Chlorophenol	<RDL	940
2-Methylnaphthalene	<RDL	940
2-Methylphenol	<RDL	940
2-Nitroaniline	<RDL	940
2-Nitrophenol	<RDL	940
3,3'-Dichlorobenzidine	<RDL	940
3-Nitroaniline	<RDL	940
4,6-Dinitro-2-methylphenol	<RDL	940
4-Bromophenyl phenyl ether	<RDL	940
4-Chloro-3-methylphenol	<RDL	940
4-Chloroaniline	<RDL	940
4-Chlorophenyl phenyl ether	<RDL	940
4-Methylphenol	<RDL	940
4-Nitroaniline	<RDL	940
4-Nitrophenol	<RDL	940
Acenaphthene	<RDL	940
Acenaphthylene	<RDL	940
Anthracene	<RDL	940
Benzo(a)anthracene	<RDL	940
Benzo(a)pyrene	<RDL	940
Benzo(b)fluoranthene	<RDL	940
Benzo(g,h,i)perylene	<RDL	940
Benzo(k)fluoranthene	<RDL	940
bis(2-Chloroethoxy)methane	<RDL	940
bis(2-Chloroethyl)ether	<RDL	940
bis(2-Chloroisopropyl)ether	<RDL	940
bis(2-Ethylhexyl)phthalate	<RDL	940
Butyl benzyl phthalate	<RDL	940
Carbazole	<RDL	940
Chrysene	<RDL	940
Di-n-butylphthalate	<RDL	940
Di-n-octylphthalate	<RDL	940
Dibenz(a,h)anthracene	<RDL	940
Dibenzofuran	<RDL	940
Diethylphthalate	<RDL	940
Dimethylphthalate	<RDL	940
Fluoranthene	<RDL	940
Fluorene	<RDL	940
Hexachlorobenzene	<RDL	940
Hexachlorobutadiene	<RDL	940
Hexachlorocyclopentadiene	<RDL	940
Hexachloroethane	<RDL	940
Indeno(1,2,3-cd)pyrene	<RDL	940
Isophorone	<RDL	940

n-Nitroso-di-n-propylamine	<RDL	940
n-Nitrosodiphenylamine	<RDL	940
Naphthalene	<RDL	940
Nitrobenzene	<RDL	940
Pentachlorophenol	<RDL	940
Phenanthrene	<RDL	940
Phenol	<RDL	940
Pyrene	<RDL	940

ANALYSIS: VOC's - TCL

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: ug/L

Analyte Name	Analvtical Results	Reported Detection Limits
1,1,1-Trichloroethane	5,600	250
1,1,2,2-Tetrachloroethane	<RDL	250
1,1,2-Trichloroethane	<RDL	250
1,1-Dichloroethane	<RDL	250
1,1-Dichloroethene	<RDL	250
1,2-Dichloroethane	<RDL	250
1,2-Dichloroethene (Total)	<RDL	250
1,2-Dichloropropane	<RDL	250
2-Butanone	26,000	25000
2-Hexanone	<RDL	2500
4-Methyl-2-pentanone	190,000	25000
Acetone	170,000	25000
Benzene	970	250
Bromodichloromethane	<RDL	250
Bromoform	<RDL	250
Bromomethane	<RDL	250
Carbon Disulfide	<RDL	250
Carbon Tetrachloride	<RDL	250
Chlorobenzene	<RDL	250
Chloroethane	<RDL	250
Chloroform	<RDL	250
Chloromethane	<RDL	250
cis-1,3-Dichloropropene	<RDL	250
Dibromochloromethane	<RDL	250
Ethylbenzene	12,000	2500
Methylene Chloride	460,000	25000
Styrene	<RDL	250
Tetrachloroethene	11,000	2500
Toluene	35,000	2500
trans-1,3-Dichloropropene	<RDL	250
Trichloroethene	45,000	2500
Vinyl Chloride	<RDL	100
Xylenes (Total)	60,000	2500

ANALYSIS: X Pest/PCB QC Surrogates Waste

Date Ext/Dig/Prep: 2/19/99

Date Analyzed: 2/23/99

Method Ref: 3580A/8081/2

Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates (Waters)

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Method Ref: 8260

Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4	97	0
4-Bromofluorobenzene	97	0
Toluene-d8	98	0

ANALYSIS: X SVOC Surrogates Waste Dilution

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99

Date Analyzed: 2/20/99

Result Units: %

Analyte Name	Analytical Results	Reported Detection Limits
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0

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FL Certification # E87429

NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62049

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/11/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: 9

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total) <RDL 0.02

ANALYSIS: Metals - Mercury (Misc Solids)

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury <RDL 0.25

ANALYSIS: Metals - TAL (Ashing Method)

Method Ref: 3030J/6010B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	150	0.50
Antimony	<RDL	0.50
Arsenic	<RDL	0.50
Barium	19	0.50
Beryllium	<RDL	0.03
Cadmium	0.15	0.05
Calcium	680	2.0
Chromium	230	0.50
Cobalt	1.3	0.10
Copper	30	0.50
Iron	760	1.0
Lead	7.4	0.50
Magnesium	17	0.50
Manganese	33	0.50
Nickel	88	0.10
Potassium	310	2.0
Selenium	<RDL	0.50
Silver	1.0	0.50

Sodium	6,000	10
Thallium	<RDL	0.50
Vanadium	1.5	0.10
Zinc	20	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Aroclor-1016	<RDL	100
Aroclor-1221	<RDL	200
Aroclor-1232	<RDL	200
Aroclor-1242	<RDL	100
Aroclor-1248	<RDL	100
Aroclor-1254	<RDL	100
Aroclor-1260	<RDL	100

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	50
4,4'-DDE	<RDL	50
4,4'-DDT	<RDL	100
Aldrin	<RDL	50
alpha-BHC	<RDL	50
alpha-Endosulfan	<RDL	50
beta-BHC	<RDL	50
beta-Endosulfan	<RDL	50
delta-BHC	<RDL	50
Dieldrin	<RDL	50
Endosulfan sulfate	<RDL	50
Endrin	<RDL	50
Endrin aldehyde	<RDL	50
gamma-BHC (Lindane)	<RDL	50
Heptachlor	<RDL	50
Heptachlor epoxide	<RDL	50
Methoxychlor	<RDL	250
Total Chlordane (Technical)	<RDL	500
Toxaphene	<RDL	2500

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	940
1,2-Dichlorobenzene	<RDL	940
1,3-Dichlorobenzene	<RDL	940
1,4-Dichlorobenzene	<RDL	940

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<RDL = Less than Reported Detection Limit

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Client Sample ID 9

AALS Sample ID #: AB62049 Accura Project #: 19695

2,4,5-Trichlorophenol	<RDL	940
2,4,6-Trichlorophenol	<RDL	940
2,4-Dichlorophenol	<RDL	940
2,4-Dimethylphenol	<RDL	940
2,4-Dinitrophenol	<RDL	940
2,4-Dinitrotoluene	<RDL	940
2,6-Dinitrotoluene	<RDL	940
2-Chloronaphthalene	<RDL	940
2-Chlorophenol	<RDL	940
2-Methylnaphthalene	<RDL	940
2-Methylphenol	<RDL	940
2-Nitroaniline	<RDL	940
2-Nitrophenol	<RDL	940
3,3'-Dichlorobenzidine	<RDL	940
3-Nitroaniline	<RDL	940
4,6-Dinitro-2-methylphenol	<RDL	940
4-Bromophenyl phenyl ether	<RDL	940
4-Chloro-3-methylphenol	<RDL	940
4-Chloroaniline	<RDL	940
4-Chlorophenyl phenyl ether	<RDL	940
4-Methylphenol	<RDL	940
4-Nitroaniline	<RDL	940
4-Nitrophenol	<RDL	940
Acenaphthene	<RDL	940
Acenaphthylene	<RDL	940
Anthracene	<RDL	940
Benzo(a)anthracene	<RDL	940
Benzo(a)pyrene	<RDL	940
Benzo(b)fluoranthene	<RDL	940
Benzo(g,h,i)perylene	<RDL	940
Benzo(k)fluoranthene	<RDL	940
bis(2-Chloroethoxy)methane	<RDL	940
bis(2-Chloroethyl)ether	<RDL	940
bis(2-Chloroisopropyl)ether	<RDL	940
bis(2-Ethylhexyl)phthalate	<RDL	940
Butyl benzyl phthalate	<RDL	940
Carbazole	<RDL	940
Chrysene	<RDL	940
Di-n-butylphthalate	<RDL	940
Di-n-octylphthalate	<RDL	940
Dibenz(a,h)anthracene	<RDL	940
Dibenzofuran	<RDL	940
Diethylphthalate	<RDL	940
Dimethylphthalate	<RDL	940
Fluoranthene	<RDL	940
Fluorene	<RDL	940
Hexachlorobenzene	<RDL	940
Hexachlorobutadiene	<RDL	940
Hexachlorocyclopentadiene	<RDL	940
Hexachloroethane	<RDL	940
Indeno(1,2,3-cd)pyrene	<RDL	940
Isophorone	<RDL	940

n-Nitroso-di-n-propylamine	<RDL	940
n-Nitrosodiphenylamine	<RDL	940
Naphthalene	<RDL	940
Nitrobenzene	<RDL	940
Pentachlorophenol	<RDL	940
Phenanthrene	<RDL	940
Phenol	<RDL	940
Pyrene	<RDL	940

ANALYSIS: VOC's - TCL

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: ug/L

Analyte Name	Analvtical Results	Reported Detection Limits
1,1,1-Trichloroethane	4,300	250
1,1,2,2-Tetrachloroethane	<RDL	250
1,1,2-Trichloroethane	<RDL	250
1,1-Dichloroethane	340	250
1,1-Dichloroethene	<RDL	250
1,2-Dichloroethane	<RDL	250
1,2-Dichloroethene (Total)	<RDL	250
1,2-Dichloropropane	<RDL	250
2-Butanone	25,000	25000
2-Hexanone	<RDL	2500
4-Methyl-2-pentanone	9,000	2500
Acetone	83,000	25000
Benzene	<RDL	250
Bromodichloromethane	<RDL	250
Bromoform	<RDL	250
Bromomethane	<RDL	250
Carbon Disulfide	<RDL	250
Carbon Tetrachloride	720	250
Chlorobenzene	<RDL	250
Chloroethane	<RDL	250
Chloroform	<RDL	250
Chloromethane	<RDL	250
cis-1,3-Dichloropropene	<RDL	250
Dibromochloromethane	<RDL	250
Ethylbenzene	1,100	250
Methylene Chloride	19,000	2500
Styrene	<RDL	250
Tetrachloroethene	2,700	250
Toluene	7,200	250
trans-1,3-Dichloropropene	<RDL	250
Trichloroethene	7,100	250
Vinyl Chloride	<RDL	100
Xylenes (Total)	5,400	250

ANALYSIS: X Pest/PCB QC Surrogates Waste

Method Ref: 3580A/8081/2

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates (Waters)

Method Ref: 8260

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	96	0
4-Bromofluorobenzene	95	0
Toluene-d8	99	0

ANALYSIS: X SVOC Surrogates Waste Dilution

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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LABORATORY REPORT

Accura Sample ID #: AB62050

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/11/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: 10

ANALYSIS: Cyanide

Date Ext/Dig/Prep: 2/23/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Method Ref: 9010B/9014

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total)

<RDL

0.02

ANALYSIS: Metals - Mercury (Misc Solids)

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Method Ref: 7471A

Analyte Name

Analytical Results

Reported Detection Limits

Mercury

<RDL

0.25

ANALYSIS: Metals - TAL (Ashing Method)

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Method Ref: 3030J/6010B

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum

270

0.50

Antimony

4.0

0.50

Arsenic

<RDL

0.50

Barium

52

0.50

Beryllium

0.082

0.030

Cadmium

0.67

0.050

Calcium

920

2.0

Chromium

38

0.50

Cobalt

3.5

0.10

Copper

120

0.50

Iron

2,600

1.0

Lead

67

0.50

Magnesium

170

0.50

Manganese

45

0.50

Nickel

36

0.10

Potassium

74

2.0

Selenium

1.1

0.50

Silver

<RDL

0.50

Sodium	1,000	10
Thallium	0.56	0.50
Vanadium	0.16	0.10
Zinc	470	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/24/99 Result Units: ug/Kg

Analyte Name	Analvtical Results	Reported Detection Limits
Aroclor-1016	<RDL	100
Aroclor-1221	<RDL	200
Aroclor-1232	<RDL	200
Aroclor-1242	<RDL	100
Aroclor-1248	<RDL	100
Aroclor-1254	<RDL	100
Aroclor-1260	<RDL	100

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/24/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	10
4,4'-DDE	<RDL	10
4,4'-DDT	<RDL	20
Aldrin	<RDL	10
alpha-BHC	<RDL	10
alpha-Endosulfan	<RDL	10
beta-BHC	<RDL	10
beta-Endosulfan	<RDL	10
delta-BHC	<RDL	10
Dieldrin	<RDL	10
Endosulfan sulfate	<RDL	10
Endrin	<RDL	10
Endrin aldehyde	<RDL	10
gamma-BHC (Lindane)	<RDL	10
Heptachlor	<RDL	10
Heptachlor epoxide	<RDL	10
Methoxychlor	<RDL	50
Total Chlordane (Technical)	<RDL	100
Toxaphene	<RDL	500

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analvte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	900
1,2-Dichlorobenzene	<RDL	900
1,3-Dichlorobenzene	<RDL	900
1,4-Dichlorobenzene	<RDL	900

2,4,5-Trichlorophenol	<RDL	900
2,4,6-Trichlorophenol	<RDL	900
2,4-Dichlorophenol	<RDL	900
2,4-Dimethylphenol	<RDL	900
2,4-Dinitrophenol	<RDL	900
2,4-Dinitrotoluene	<RDL	900
2,6-Dinitrotoluene	<RDL	900
2-Chloronaphthalene	<RDL	900
2-Chlorophenol	<RDL	900
2-Methylnaphthalene	<RDL	900
2-Methylphenol	<RDL	900
2-Nitroaniline	<RDL	900
2-Nitrophenol	<RDL	900
3,3'-Dichlorobenzidine	<RDL	900
3-Nitroaniline	<RDL	900
4,6-Dinitro-2-methylphenol	<RDL	900
4-Bromophenyl phenyl ether	<RDL	900
4-Chloro-3-methylphenol	<RDL	900
4-Chloroaniline	<RDL	900
4-Chlorophenyl phenyl ether	<RDL	900
4-Methylphenol	<RDL	900
4-Nitroaniline	<RDL	900
4-Nitrophenol	<RDL	900
Acenaphthene	<RDL	900
Acenaphthylene	<RDL	900
Anthracene	<RDL	900
Benzo(a)anthracene	<RDL	900
Benzo(a)pyrene	<RDL	900
Benzo(b)fluoranthene	<RDL	900
Benzo(g,h,i)perylene	<RDL	900
Benzo(k)fluoranthene	<RDL	900
bis(2-Chloroethoxy)methane	<RDL	900
bis(2-Chloroethyl)ether	<RDL	900
bis(2-Chloroisopropyl)ether	<RDL	900
bis(2-Ethylhexyl)phthalate	1,500	900
Butyl benzyl phthalate	<RDL	900
Carbazole	<RDL	900
Chrysene	<RDL	900
Di-n-butylphthalate	<RDL	900
Di-n-octylphthalate	<RDL	900
Dibenz(a,h)anthracene	<RDL	900
Dibenzofuran	<RDL	900
Diethylphthalate	<RDL	900
Dimethylphthalate	<RDL	900
Fluoranthene	<RDL	900
Fluorene	<RDL	900
Hexachlorobenzene	<RDL	900
Hexachlorobutadiene	<RDL	900
Hexachlorocyclopentadiene	<RDL	900
Hexachloroethane	<RDL	900
Indeno(1,2,3-cd)pyrene	<RDL	900
Isophorone	<RDL	900

n-Nitroso-di-n-propylamine	<RDL	900
n-Nitrosodiphenylamine	<RDL	900
Naphthalene	<RDL	900
Nitrobenzene	<RDL	900
Pentachlorophenol	<RDL	900
Phenanthrene	<RDL	900
Phenol	<RDL	900
Pyrene	<RDL	900

ANALYSIS: VOC's - TCL

Method Ref. 5030B/8260B

Date Ext/Dig/Prep: 2/17/99

Date Analyzed: 2/17/99

Result Units: ug/L

Analyte Name	Analytical Results	Reported Detection Limits
1,1,1-Trichloroethane	5,300	2500
1,1,2,2-Tetrachloroethane	<RDL	2500
1,1,2-Trichloroethane	<RDL	2500
1,1-Dichloroethane	<RDL	2500
1,1-Dichloroethene	<RDL	2500
1,2-Dichloroethane	<RDL	2500
1,2-Dichloroethene (Total)	<RDL	2500
1,2-Dichloropropane	<RDL	2500
2-Butanone	130,000	25000
2-Hexanone	<RDL	25000
4-Methyl-2-pentanone	270,000	250000
Acetone	310,000	250000
Benzene	13,000	2500
Bromodichloromethane	<RDL	2500
Bromoform	<RDL	2500
Bromomethane	<RDL	2500
Carbon Disulfide	<RDL	2500
Carbon Tetrachloride	<RDL	2500
Chlorobenzene	<RDL	2500
Chloroethane	<RDL	2500
Chloroform	<RDL	2500
Chloromethane	<RDL	2500
cis-1,3-Dichloropropene	<RDL	2500
Dibromochloromethane	<RDL	2500
Ethylbenzene	220,000	25000
Methylene Chloride	2,000,000	250000
Styrene	<RDL	2500
Tetrachloroethene	230,000	25000
Toluene	2,500,000	250000
trans-1,3-Dichloropropene	<RDL	2500
Trichloroethene	72,000	2500
Vinyl Chloride	<RDL	1000
Xylenes (Total)	950,000	25000

ANALYSIS: X Pest/PCB QC Surrogates Waste

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/24/99 Method Ref: 3580A/8081/2

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	See Narrative	0
Tetrachloro-m-xylene	See Narrative	0

ANALYSIS: X VOC QC Surrogates (Waters)

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Method Ref: 8260

Result Units: %

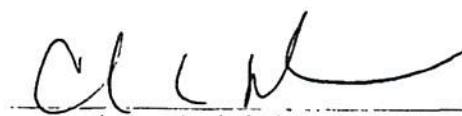
<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4	97	0
4-Bromofluorobenzene	87	0
Toluene-d8	103	0

ANALYSIS: X SVOC Surrogates Waste Dilution

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/22/99 Method Ref: 3580A/8270C

Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol	See Narrative	0
2-Fluorobiphenyl	See Narrative	0
2-Fluorophenol	See Narrative	0
Nitrobenzene-d5	See Narrative	0
p-Terphenyl-d14	See Narrative	0
Phenol-d5	See Narrative	0



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NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62051

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: SOIL

Client Sample ID: METHOD BLANK

ANALYSIS: Cyanide

Method Ref: 9010B/9014

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/22/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Cyanide (Total) <RDL 0.02

ANALYSIS: Metals - Mercury - TAL

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury <RDL 0.5

ANALYSIS: Metals - TAL

Method Ref: 3050B/6010B

Date Ext/Dig/Prep: 2/22/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	<RDL	5.0
Antimony	<RDL	5.0
Arsenic	<RDL	5.0
Barium	<RDL	5.0
Beryllium	<RDL	0.3
Cadmium	<RDL	0.5
Calcium	<RDL	20
Chromium	<RDL	5.0
Cobalt	<RDL	1.0
Copper	<RDL	5.0
Iron	<RDL	10
Lead	<RDL	5.0
Magnesium	<RDL	5.0
Manganese	<RDL	5.0
Nickel	<RDL	1.0
Potassium	<RDL	20
Selenium	<RDL	5.0
Silver	<RDL	5.0

Sodium	<RDL	100
Thallium	<RDL	5.0
Vanadium	<RDL	1.0
Zinc	<RDL	100

ANALYSIS: PCB's

Method Ref: 3550B/8082

Date Ext/Dig/Prep:	2/17/99	Date Analyzed:	2/19/99	Result Units:	ug/Kg
<u>Analyte Name</u>		<u>Analytical Results</u>		<u>Reported Detection Limits</u>	
Aroclor-1016		<RDL		20	
Aroclor-1221		<RDL		40	
Aroclor-1232		<RDL		40	
Aroclor-1242		<RDL		20	
Aroclor-1248		<RDL		20	
Aroclor-1254		<RDL		20	
Aroclor-1260		<RDL		20	

ANALYSIS: Pesticides

Method Ref: 3550B/8081A

Date Ext/Dig/Prep:	2/17/99	Date Analyzed:	2/19/99	Result Units:	ug/Kg
<u>Analyte Name</u>		<u>Analvtical Results</u>		<u>Reported Detection Limits</u>	
4,4'-DDD		<RDL		2	
4,4'-DDE		<RDL		2	
4,4'-DDT		<RDL		4	
Aldrin		<RDL		2	
alpha-BHC		<RDL		2	
alpha-Endosulfan		<RDL		2	
beta-BHC		<RDL		2	
beta-Endosulfan		<RDL		2	
delta-BHC		<RDL		2	
Dieldrin		<RDL		2	
Endosulfan sulfate		<RDL		2	
Endrin		<RDL		2	
Endrin aldehyde		<RDL		2	
gamma-BHC (Lindane)		<RDL		2	
Heptachlor		<RDL		2	
Heptachlor epoxide		<RDL		2	
Methoxychlor		<RDL		10	
Total Chlordane (Technical)		<RDL		20	
Toxaphene		<RDL		100	

ANALYSIS: SVOC's - TCL

Method Ref: 3550B/8270C

Date Ext/Dig/Prep:	2/23/99	Date Analyzed:	2/25/99	Result Units:	ug/Kg
<u>Analvte Name</u>		<u>Analvtical Results</u>		<u>Reported Detection Limits</u>	
1,2,4-Trichlorobenzene		<RDL		330	
1,2-Dichlorobenzene		<RDL		330	
1,3-Dichlorobenzene		<RDL		330	
1,4-Dichlorobenzene		<RDL		330	

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<RDL = Less than Reported Detection Limit

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Client Sample ID: METHOD BLANK

AALSample ID #: AB62051 Accura Project #: 19695

2,4,5-Trichlorophenol	<RDL	330
2,4,6-Trichlorophenol	<RDL	330
2,4-Dichlorophenol	<RDL	330
2,4-Dimethylphenol	<RDL	330
2,4-Dinitrophenol	<RDL	1700
2,4-Dinitrotoluene	<RDL	330
2,6-Dinitrotoluene	<RDL	330
2-Chloronaphthalene	<RDL	330
2-Chlorophenol	<RDL	330
2-Methylnaphthalene	<RDL	330
2-Methylphenol	<RDL	330
2-Nitroaniline	<RDL	660
2-Nitrophenol	<RDL	330
3,3'-Dichlorobenzidine	<RDL	330
3-Nitroaniline	<RDL	660
4,6-Dinitro-2-methylphenol	<RDL	660
4-Bromophenyl phenyl ether	<RDL	330
4-Chloro-3-methylphenol	<RDL	330
4-Chloroaniline	<RDL	330
4-Chlorophenyl phenyl ether	<RDL	330
4-Methylphenol	<RDL	330
4-Nitroaniline	<RDL	660
4-Nitrophenol	<RDL	660
Acenaphthene	<RDL	330
Acenaphthylene	<RDL	330
Anthracene	<RDL	330
Benzo(a)anthracene	<RDL	330
Benzo(a)pyrene	<RDL	330
Benzo(b)fluoranthene	<RDL	330
Benzo(g,h,i)perylene	<RDL	330
Benzo(k)fluoranthene	<RDL	330
bis(2-Chloroethoxy)methane	<RDL	330
bis(2-Chloroethyl)ether	<RDL	330
bis(2-Chloroisopropyl)ether	<RDL	330
bis(2-Ethylhexyl)phthalate	<RDL	330
Butyl benzyl phthalate	<RDL	330
Carbazole	<RDL	330
Chrysene	<RDL	330
Di-n-butylphthalate	<RDL	330
Di-n-octylphthalate	<RDL	330
Dibenz(a,h)anthracene	<RDL	330
Dibenzofuran	<RDL	330
Diethylphthalate	<RDL	330
Dimethylphthalate	<RDL	330
Fluoranthene	<RDL	330
Fluorene	<RDL	330
Hexachlorobenzene	<RDL	330
Hexachlorobutadiene	<RDL	330
Hexachlorocyclopentadiene	<RDL	330
Hexachloroethane	<RDL	330
Indeno(1,2,3-cd)pyrene	<RDL	330
Isophorone	<RDL	330

n-Nitroso-di-n-propylamine	<RDL	330
n-Nitrosodiphenylamine	<RDL	330
Naphthalene	<RDL	330
Nitrobenzene	<RDL	330
Pentachlorophenol	<RDL	660
Phenanthrene	<RDL	330
Phenol	<RDL	330
Pyrene	<RDL	330

ANALYSIS: VOC's - TCL

Method Ref: 8260B

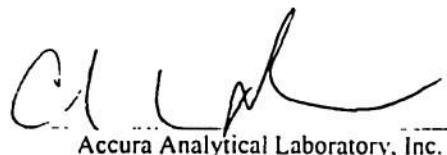
Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/16/99 Result Units: ug/Kg

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1,1-Trichloroethane	<RDL	5
1,1,2-Tetrachloroethane	<RDL	5
1,1,2-Trichloroethane	<RDL	5
1,1-Dichloroethane	<RDL	5
1,1-Dichloroethene	<RDL	5
1,2-Dichloroethane	<RDL	5
1,2-Dichloroethene (Total)	<RDL	5
1,2-Dichloropropane	<RDL	5
2-Butanone (MEK)	<RDL	50
2-Hexanone	<RDL	50
4-Methyl-2-pentanone (MIBK)	<RDL	50
Acetone	<RDL	50
Benzene	<RDL	5
Bromodichloromethane	<RDL	5
Bromoform	<RDL	5
Bromomethane	<RDL	5
Carbon disulfide	<RDL	10
Carbon tetrachloride	<RDL	5
Chlorobenzene	<RDL	5
Chloroethane	<RDL	5
Chloroform	<RDL	5
Chloromethane	<RDL	5
cis-1,3-Dichloropropene	<RDL	5
Dibromochloromethane	<RDL	5
Ethylbenzene	<RDL	5
Methylene chloride	<RDL	10
Styrene	<RDL	5
Tetrachloroethene	<RDL	5
Toluene	<RDL	5
trans-1,3-Dichloropropene	<RDL	5
Trichloroethene	<RDL	5
Vinyl chloride	<RDL	5
Xylenes (Total)	<RDL	5

<u>ANALYSIS: X Pest/PCB QC Surrogates</u>		Method Ref: 3550B/8081/2	
Date Ext/Dig/Prep:	2/17/99	Date Analyzed:	2/19/99
<u>Analyte Name</u>		<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl		124	0
Tetrachloro-m-xylene		112	0

<u>ANALYSIS: X VOC QC Surrogates</u>		Method Ref: 8260B	
Date Ext/Dig/Prep:	2/16/99	Date Analyzed:	2/16/99
<u>Analyte Name</u>		<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,2-Dichloroethane-d4		96	0
4-Bromofluorobenzene		94	0
Toluene-d8		99	0

<u>ANALYSIS: X SVOC QC Surrogates (Soils)</u>		Method Ref: 3550B/8270C	
Date Ext/Dig/Prep:	2/23/99	Date Analyzed:	2/25/99
<u>Analyte Name</u>		<u>Analytical Results</u>	<u>Reported Detection Limits</u>
2,4,6-Tribromophenol		91	0
2-Fluorobiphenyl		80	0
2-Fluorophenol		60	0
Nitrobenzene-d5		70	0
p-Terphenyl-d14		78	0
Phenol-d5		72	0



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NC Certification # 483

SC Certification # 98015

USACE-MRD Approved

LABORATORY REPORT

Accura Sample ID #: AB62052

Accura Project #: 19695

Client: Tetra Tech Nus -Norcross

Date Sampled: 2/10/99

Client Contact: PAULA MACLAREN

Date Received: 2/12/99

Client Project Number: UNDISCLOSED

Date Reported: 3/4/99

Client Project Name: GOINS OIL, CLEVELAND, TN

Sample Matrix: LIQUID

Client Sample ID: METHOD BLANK

ANALYSIS: Metals - Mercury (Misc Solids)

Method Ref: 7471A

Date Ext/Dig/Prep: 2/17/99 Date Analyzed: 2/17/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Mercury	<RDL	0.25
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ANALYSIS: Metals - TAL (Ashing Method)

Method Ref: 3030J/6010B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name

Analytical Results

Reported Detection Limits

Aluminum	<RDL	0.50
Antimony	<RDL	0.50
Arsenic	<RDL	0.50
Barium	<RDL	0.50
Beryllium	<RDL	0.030
Cadmium	<RDL	0.050
Calcium	<RDL	2.0
Chromium	<RDL	0.50
Cobalt	<RDL	0.10
Copper	<RDL	0.50
Iron	<RDL	1.0
Lead	<RDL	0.50
Magnesium	<RDL	0.50
Manganese	<RDL	0.50
Nickel	<RDL	0.10
Potassium	<RDL	2.0
Selenium	<RDL	0.50
Silver	<RDL	0.50
Sodium	<RDL	10
Thallium	<RDL	0.50
Vanadium	<RDL	0.10
Zinc	<RDL	10

ANALYSIS: PCB's by Waste Dilution

Method Ref: 3580A/8082

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: ug/Kg

Analyte Name	Analytical Results	Reported Detection Limits
Aroclor-1016	<RDL	1
Aroclor-1221	<RDL	2
Aroclor-1232	<RDL	2
Aroclor-1242	<RDL	1
Aroclor-1248	<RDL	1
Aroclor-1254	<RDL	1
Aroclor-1260	<RDL	1

ANALYSIS: Pesticides by Waste Dilution

Method Ref: 3580A/8081A

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
4,4'-DDD	<RDL	0.1
4,4'-DDE	<RDL	0.1
4,4'-DDT	<RDL	0.2
Aldrin	<RDL	0.1
alpha-BHC	<RDL	0.1
alpha-Endosulfan	<RDL	0.1
beta-BHC	<RDL	0.1
beta-Endosulfan	<RDL	0.1
delta-BHC	<RDL	0.1
Dieldrin	<RDL	0.1
Endosulfan sulfate	<RDL	0.1
Endrin	<RDL	0.1
Endrin aldehyde	<RDL	0.1
gamma-BHC (Lindane)	<RDL	0.1
Heptachlor	<RDL	0.1
Heptachlor epoxide	<RDL	0.1
Methoxychlor	<RDL	0.5
Total Chlordane (Technical)	<RDL	1.0
Toxaphene	<RDL	5.0

ANALYSIS: SVOC's - TCL (Waste Dilution)

Method Ref: 3580A/8270C

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: mg/Kg

Analyte Name	Analytical Results	Reported Detection Limits
1,2,4-Trichlorobenzene	<RDL	100
1,2-Dichlorobenzene	<RDL	100
1,3-Dichlorobenzene	<RDL	100
1,4-Dichlorobenzene	<RDL	100
2,4,5-Trichlorophenol	<RDL	100
2,4,6-Trichlorophenol	<RDL	100
2,4-Dichlorophenol	<RDL	100
2,4-Dimethylphenol	<RDL	100

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<RDL = Less than Reported Detection Limit

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Client Sample ID: METHOD BLANK

AALS Sample ID #: AB62052 Accura Project #: 19695

2,4-Dinitrophenol	<RDL	100
2,4-Dinitrotoluene	<RDL	100
2,6-Dinitrotoluene	<RDL	100
2-Chloronaphthalene	<RDL	100
2-Chlorophenol	<RDL	100
2-Methylnaphthalene	<RDL	100
2-Methylphenol	<RDL	100
2-Nitroaniline	<RDL	100
2-Nitrophenol	<RDL	100
3,3'-Dichlorobenzidine	<RDL	100
3-Nitroaniline	<RDL	100
4,6-Dinitro-2-methylphenol	<RDL	100
4-Bromophenyl phenyl ether	<RDL	100
4-Chloro-3-methylphenol	<RDL	100
4-Chloroaniline	<RDL	100
4-Chlorophenyl phenyl ether	<RDL	100
4-Methylphenol	<RDL	100
4-Nitroaniline	<RDL	100
4-Nitrophenol	<RDL	100
Acenaphthene	<RDL	100
Acenaphthylene	<RDL	100
Anthracene	<RDL	100
Benzo(a)anthracene	<RDL	100
Benzo(a)pyrene	<RDL	100
Benzo(b)fluoranthene	<RDL	100
Benzo(g,h,i)perylene	<RDL	100
Benzo(k)fluoranthene	<RDL	100
bis(2-Chloroethoxy)methane	<RDL	100
bis(2-Chloroethyl)ether	<RDL	100
bis(2-Chloroisopropyl)ether	<RDL	100
bis(2-Ethylhexyl)phthalate	<RDL	100
Butyl benzyl phthalate	<RDL	100
Carbazole	<RDL	100
Chrysene	<RDL	100
Di-n-butylphthalate	<RDL	100
Di-n-octylphthalate	<RDL	100
Dibenz(a,h)anthracene	<RDL	100
Dibenzofuran	<RDL	100
Diethylphthalate	<RDL	100
Dimethylphthalate	<RDL	100
Fluoranthene	<RDL	100
Fluorene	<RDL	100
Hexachlorobenzene	<RDL	100
Hexachlorobutadiene	<RDL	100
Hexachlorocyclopentadiene	<RDL	100
Hexachloroethane	<RDL	100
Indeno(1,2,3-cd)pyrene	<RDL	100
Isophorone	<RDL	100
n-Nitroso-di-n-propylamine	<RDL	100
n-Nitrosodiphenylamine	<RDL	100
Naphthalene	<RDL	100
Nitrobenzene	<RDL	100

Pentachlorophenol	<RDL	100
Phenanthrene	<RDL	100
Phenol	<RDL	100
Pyrene	<RDL	100

ANALYSIS: VOC's - TCL

Method Ref: 5030B/8260B

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/16/99 Result Units: ug/L

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
1,1,1-Trichloroethane	<RDL	5
1,1,2,2-Tetrachloroethane	<RDL	5
1,1,2-Trichloroethane	<RDL	5
1,1-Dichloroethane	<RDL	5
1,1-Dichloroethene	<RDL	5
1,2-Dichloroethane	<RDL	5
1,2-Dichloroethene (Total)	<RDL	5
1,2-Dichloropropane	<RDL	5
2-Butanone	<RDL	50
2-Hexanone	<RDL	50
4-Methyl-2-pentanone	<RDL	50
Acetone	<RDL	50
Benzene	<RDL	5
Bromodichloromethane	<RDL	5
Bromoform	<RDL	5
Bromomethane	<RDL	5
Carbon Disulfide	<RDL	5
Carbon Tetrachloride	<RDL	5
Chlorobenzene	<RDL	5
Chloroethane	<RDL	5
Chloroform	<RDL	5
Chloromethane	<RDL	5
cis-1,3-Dichloropropene	<RDL	5
Dibromochloromethane	<RDL	5
Ethylbenzene	<RDL	5
Methylene Chloride	<RDL	5
Styrene	<RDL	5
Tetrachloroethene	<RDL	5
Toluene	<RDL	5
trans-1,3-Dichloropropene	<RDL	5
Trichloroethene	<RDL	5
Vinyl Chloride	<RDL	2
Xylenes (Total)	<RDL	5

ANALYSIS: X Pest/PCB QC Surrogates Waste

Method Ref: 3580A/8081/2

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/23/99 Result Units: %

<u>Analyte Name</u>	<u>Analytical Results</u>	<u>Reported Detection Limits</u>
Decachlorobiphenyl	118	0
Tetrachloro-m-xylene	117	0

ANALYSIS: X VOC QC Surrogates (Waters)

Date Ext/Dig/Prep: 2/16/99 Date Analyzed: 2/16/99 Result Units: %

Method Ref: 8260

Analyte Name	Analytical Results	Reported Detection Limits
1,2-Dichloroethane-d4	96	0
4-Bromofluorobenzene	94	0
Toluene-d8	99	0

ANALYSIS: X SVOC Surrogates Waste Dilution

Date Ext/Dig/Prep: 2/19/99 Date Analyzed: 2/20/99 Result Units: %

Method Ref: 3580A/8270C

Analyte Name	Analytical Results	Reported Detection Limits
2,4,6-Tribromophenol	117	0
2-Fluorobiphenyl	120	0
2-Fluorophenol	111	0
Nitrobenzene-d5	113	0
p-Terphenyl-d14	114	0
Phenol-d5	114	0

Accura Analytical Laboratory, Inc.

APPENDIX D

TABLE OF WITNESSES

(One Page)

TABLE OF WITNESSES

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